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Ca

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neither science nor art alone but both

Many physicians and surgeons lose interest in the patient upon completion of the first two scientific stages of medical care—diagnosis and definitive treatment. The phase of convalescence and rehabilitation of the cured patient or of palliative treatment, especially during the terminal stages, of the incurable patient—the phase calling upon the physician's art—is often neglected.

The cancer patient's physician may feel that he can spend his time and talent to greater profit in diagnosis and active treatment of new patients—at the expense of his obligation to the cured patient requiring physical and psychological rehabilitative management and to the terminal patient needing pain relief and warmhearted interest.

When cure can no longer be hoped for, the sympathetic and resourceful physician continues his efforts to the end. He bolsters the patient's will to live by artful symptomatic treatment for the malnutrition, anemia, pain, and depression. His frequent, leisurely, and intimate visits assure the patient of his continuing sincere interest.

Prolongation of life—the prime function of the physician, in cancer as well as in all other diseases—increases the rare possibility that nature may intervene with a spontaneous remission or that science may develop an effective treatment for his patient's particular kind of cancer. Only the dead are beyond hope.

Cover——

Peter Stuyvesant, in 1658, established an eight-man "rattle watch" for the protection of New Amsterdam. This first police force of New York was as different from the present complex and efficient Department of Police Safety as was Peter's peg leg—even though adorned with silver bands—from the complex and efficient prostheses used in modern rehabilitation.

The Seal of New Amsterdam, 1654, from *The Civic Ancestry of New York—City and State*, by Edward S. Wilde, 1913.

Cover and Seal, Courtesy of the Museum of the City of New York. Color photography by Michael Hollander, *Photographer*, New York City.

NEWSLETTER

MAY, 1956

A curious compound out of the Middle East is showing up some of the baffling inconsistencies of cancer. In small doses orally it tends to prevent skin cancer. Large doses intravenously or intraperitoneally intensify the effects of ultraviolet light and accelerate and amplify ultraviolet carcinogenesis. An extract of many plants -- particularly citrus and fig -- it is called "psoralen." Fahmy (University of Cairo) started modern studies on the substance; Fitzpatrick (U. of Ore.) is conducting extensive physiological tests, and Griffin and O'Neal (M. D. Anderson) are studying its biochemical properties. The last have worked out its molecular structure and are testing analogues. Some speculate that down through the ages psoralen may have played an important role in race determination.

In mice, intravenous or intraperitoneal injections prior to ultraviolet exposure bring about rapid and prolific skin cancers. Fed to the animals, psoralen inhibits skin cancers. In humans, topical application before exposure to sunlight brings on severe blistering, redness, and a first class sunburn, followed many days later by a deep tanning that radiates from the psoralen-treated site along the lymphatics that apparently pick up the substance. Taken orally in small doses before ultraviolet exposure, psoralen produces a rapid and beautiful bronzing effect that sun-worshippers spend months on a beach acquiring. Several hundred volunteers in Arizona, Oregon, and Hawaii are taking small doses orally in a study designed to determine whether man, like the mouse, will find psoralen a cancer preventive. The studies are long term, of course.

The Papanicolaou technique is being used experimentally and with success in diagnosis of skin cancers by Urbach, Moore, and Traenkle (Roswell Park, Buffalo). Suspicious lesions are removed, sliced down the center, and the cut surfaces rubbed on a slide. Less coherent cancer cells rub off readily and can be viewed under the microscope. It takes a good cytologist to do the trick, but in many cases -- particularly when the lesion is so small as to give the pathologist trouble -- the method is highly useful.

Lemon (Boston U.) reports that a combination of thyroxine and cortisone is proving as effective against advanced breast cancer as adrenalectomy and hypophysectomy. He feels that the combination may constitute a chemical hypophysectomy by suppressing pituitary activity; and this is supported by urinary studies -- patients improved by the procedure show decreased steroid output during the period of improvement. In these studies, one third of the patients derive no benefit from the treatment; one third are helped up to six months; and one third do well for from six months to two years. Good effects are judged only upon such objective evidence as tumor regression, roentgen-ray shadow disappearance, and healing.

The Biophysics Department of Colorado U. seems to be helping establish a new era in investigation. Puck and Marcus have developed a system for growing clones from single cells -- human cells. The secret lies largely in kind treatment -- mild trypsinization and gentle shaking that do not injure the cells. Tests have shown that by conventional treatment the cells appear undamaged but will not take up P^{32}-labeled nutrients, while cells treated by the Puck system show a vigorous appetite for the radioactive nutrient. Clones have developed from five of the six human cell types so far tested, including skin, kidney, liver, conjunctiva, and HeLa tumor. The technique will be of tremendous help to geneticists in determining normal mutation rates and the effect of mutagens on various types of cells, to virologists in ascertaining mitotic rates of specific cells, to the radiation physicist in calculating dose effects, and to many others.

Lerman has begun a fascinating series of experiments with DNA, also known as the transforming factor. He is fractionating DNA by special techniques to find the specific genetic arrangement that holds the chemical secrets of physical characteristics. In his present studies, he is concerned with the transmission of pathogenicity, streptomycin resistance, and mannitol dependence.

Shubik (Chicago Med. School) with Hadler and Saffiotti has begun a series of studies of the possible carcinogenicity of new commercial products. The work has confirmed what everyone in the field suspected: this type of testing costs time, money, and patience. Complicating these studies are such factors as: what is carcinogenic to the

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Keeping up

Technique of Endometrial Cytodiagnosis

A specially designed, soft polyethylene tube connected to a 10-cc. syringe is inserted, through a vaginal speculum, two or three inches into the endocervical canal. Suction draws secretion into the tube. The aspirate is expressed onto slides, fixed, stained, and examined in the usual manner. No difficulty is encountered in entering the uterine cavity or in obtaining adequate cellular material. Pregnancy must be precluded. Dependence upon cytological examination of vaginal smears for diagnosis of endometrial cancer results in a high percentage of false negatives, as the small cells that reach the vagina are usually disintegrated beyond identification. Moreover, the patient most prone to endometrial carcinoma is usually in the older age group in which stenosis of the endocervical canal is not uncommon. This simple office technique requires but two minutes, causes no discomfort to the patient, and can be expected to reduce greatly the number of false negatives in the diagnosis of endometrial carcinoma.

Winer, M. L.; Gunn, S. A., and Ayre, J. E.: Cytodiagnosis of endometrium; new, simple office procedure. Obst. & Gynec. 5:279-282, March, 1955.

Sigmoidoscopic Examinations

Most rectal and colonic cancers begin in pre-existing benign polyps, but symptoms usually are not produced until polyps have grown to considerable size. Such polyps are found in approximately 10 per cent of routine autopsies, and early discovery is imperative before malignant transformation occurs. Although most patients should have some preparation of the lower bowel before sigmoidoscopic examination, patients with gastrointestinal inflammatory conditions, obstruction, stricture, or rectal pain are examined without preliminary preparation. Preparation includes emptying of the lower bowel for visualization. Enemas in disposable polyethylene containers are available, and adequate and nonirritating cleansing can be easily achieved just before examination; home enemas are frequently unsatisfactory. If radiographic studies of the colon are to be made after sigmoidoscopic examination, the patient takes 1½ to 2 oz. of castor oil three or four hours before going to bed the night before. Barium enema should be deferred until two or three hours after examination. The perineum, the vulva, and the anal and perianal regions are carefully inspected. Since about half of all malignant lesions of the colon and rectum are within reach of the examining finger, a digital examination of the anal canal and lower rectum should be performed. The prostate is palpated, or meticulous pelvic examination is performed. Digital examination is easily performed with the patient in a left lateral Sim's position. If a pelvic examination is also being done, the lithotomy position is preferred. Examination may be uncomfortable or embarrassing, and the procedure should always be explained to the patient. If necessary, a topical anesthetic may be applied before examination. The equipment necessary for complete lower-bowel visualization includes an anoscope, a simple 10-in. sigmoidoscope with the lighting at either the proximal or the distal end, a smaller sigmoidoscope for passing colonic stomas or strictured areas,

with Cancer

biopsy forceps, cotton swabs, and adequate suction apparatus. Sigmoidoscopic examination may be done with the patient in the knee-chest position; in the left lateral Sim's position, which is best if the individual is seriously ill, obese, or under general anesthesia; or in an inverted position on a special examining table. The procedure is explained to the patient, especially the fact that there may be some discomfort, such as abdominal cramps when air is introduced. A warning against jumping or moving suddenly is given. As soon as the sigmoidoscope is passed through the anal canal, the obturator is removed and the instrument is slowly advanced under direct visualization with good illumination. When a spastic area or a valve seems to obstruct the instrument, a slight withdrawal is made, and, after a brief interval, the sigmoidoscope is slowly advanced again. Greatest visualization is achieved as the instrument is being withdrawn. Obstruction, some inflammatory conditions, and atrophied bowel musculature in aged persons are hazards in examination. Instrumental perforations usually can be avoided, however, if gentleness is employed and if the sigmoidoscope is slowly advanced, with good visualization of the area ahead, and is never forced.

Swinton, N. W.: Sigmoidoscopic examinations. S. Clin. North America 35:833-845, June, 1955.

Is Cancer Hereditary?

In certain rare types of human neoplasms, genetic factors appear to play a major role, but, in the common types of human neoplastic disease, genetic factors appear to play a minor role, if any, in comparison with the nongenetic factors. Intestinal polyposis, retinoblastoma, and neurofibromatosis are examples of the genetically influenced neoplasms. Siblings of persons with cancer of the stomach, breast, or colon are but slightly more likely to have cancer of these sites than is the general population. This is supported by statistical investigations and by studies of cancer incidence in twins.

Anon.: Is cancer hereditary? [Queries and Minor Notes.] J.A.M.A. 157: 560-561, Feb. 5, 1955.

Cancer of Large Intestine

Treatment of cancer of the colon is entirely surgical. Radiation, hormones, and other therapeutic modalities are ineffective. Well-designed operations, when carefully performed, give a good outlook for survival, which is dependent upon the extent to which the surgeon can remove the tumor and upon the area of spread. This is most easily possible when the tumor is in the proximal right colon or sigmoid, less easily when in the rectosigmoid and rectum, and very difficult when in the splenic or hepatic flexures. Early symptoms of large-bowel tumor are bleeding, changes in evacuation rhythm, and obstruction. With improved surgical techniques the outlook for survival has been improved. Although antibiotics have contributed greatly to freedom from technical restrictions designed to prevent contamination of the peritoneum, it was formerly possible to achieve complete mobility of bowel segments and wide dissection if careful technique was used, critical blood supply preserved, and anastomoses done without tension. It is necessary to know the draining area of each bowel segment, since tumors may skip large groups of

lymph nodes and grow in a distant and isolated node. The draining area must, therefore, be removed in its entirety. Formerly extension of metastases to the liver was considered an indication of inoperability. Now, however, with increasing experience and established safety of resecting procedures, it is agreed that, even in the presence of liver deposits, a resectable tumor should be removed.

Mulholland, J. H.: The treatment of rectal and colon cancer. New York State J. Med. 55:3146-3138, Nov. 1, 1955.

Prognostic Vaginal Cytology

Determination of vaginal cytological patterns before and after radical hysterectomy with bilateral salpingo-oophorectomy and pelvic lymphadenectomy for genital cancer was applied to prognosis. When the initial, preoperative vaginal smear contains more than 50 per cent of basal cells, a poor prognosis is suggested, and when there is an increase of basal cells beyond 20 per cent in the smear after radical hysterectomy, a favorable prognosis may be expected. It had previously been shown that carcinoma of the cervix would respond to radiotherapy if the preoperative smear showed "sensitization response," which resides chiefly in the basal cells. Patients with relatively atrophic smears have less favorable prognoses than have those with moderately cornified smears when treated surgically. The vaginal smear after radical hysterectomy is not always atrophic, probably because of the influence of estrogen of suprarenal cortical origin.

Liu, W.: Vaginal cytology in cancer patients treated by radical hysterectomy. Am. J. Obst. & Gynec. 69:299-311, Feb., 1955.

Etiology of Cancer

It is the general practitioner who first sees the cancer patient. If the practicing physicians of this country would concentrate on the causes of cancer, the number of known causes would increase rapidly. The physician knows his patient well, knows where and under what conditions he works, and to what possible carcinogens he has been exposed. At present, in only about 1 per cent of cancers seen in everyday practice is the cause known. Among the known carcinogenic factors are arsenic, tars, shale oil, petroleum products, aromatic amines, solar and roentgen-ray radiation, radioactive chemicals and ores, radium paint, asbestos, chromates, nickel compounds, benzene, isopropyl alcohol, thermic trauma, *Schistosoma*, beta-naphthylamine, styryl 430 (trypanocide), and 2-acetylaminofluorene (insecticide). The following substances have been shown to be carcinogenic in animals: certain estrogens, carbon tetrachloride, chloroform, DDT, certain dyes (Light Green SF, Brilliant Green, and FCF), cellophane and thirteen other plastics, thiourea, Dulcia (artificial sweetener), and methylated naphthalene. Oral cancer in India is caused largely by chewing the betel nut. Thermal injury is the cause of cancers in India, where cigars are smoked with the lighted end inside the mouth; in China, where hot bricks beneath the perforated mat beds cause chronic burns; and in the Himalayas, where heated coals carried in baskets give repeated skin burns from which cancers arise. Heredity is a causative factor in retinoblastoma, neurofibrosis, intestinal polyposis, and xeroderma pigmentosum. North Scandinavians living on salt fish and venison with few vegetables have a high incidence of oral-pharyngeal cancer. Liver cancer has a high incidence in Africa, Indonesia, China, Japan, and the Philippines, where the diet is deficient in proteins and vitamins. Penile cancer occurs almost exclusively in the uncircumcised. Breast cancer has a higher incidence among women of a relatively high economic status; uterine cervical cancer, in those of relatively low economic status. Carcinogenic factors may act (1) directly, as exposure of the skin to solar rays; (2) at the site in which the carcinogen is deposited, as radium deposited in bone; (3) on an organ of excretion, as the aromatic amines in the bladder; (4) through functional deficiency, as iodine deficiency in the thyroid gland; and (5) through nutritional deficiency. When urethane, which induces

lung cancer in mice, is given to a pregnant mouse, it causes lung cancer in the offspring; and when methylcholanthrene is given to lactating rats, the sucklings develop acute leukemia. This crossing of the placental and the lacteal barriers should be kept in mind as possible causes of human cancer that are now unknown.

Stewart, H. L.: Multiple views on the causation of cancer. Bull. New York Acad. Med. 31: 726-732, Oct., 1955.

Cancer Detection in Connecticut

All county medical societies in Connecticut have prepared lists of physicians who are available for early detection by physical examination of cancer of accessible sites. The Connecticut Division of the American Cancer Society, Inc., aids local medical societies in publicizing this service. Although only about 50 per cent of cancers at a recognizable stage by site of occurrence can be discovered by physical examination alone, experience has shown that these examinations frequently reveal symptoms of more deep-seated pathology requiring further diagnostic procedures leading to the discovery of cancer of inaccessible sites. Many such patients present themselves as asymptomatic and some are found to be already incurable. However, the number of patients with far-advanced symptoms and pathology may be reduced materially by wide extension of the program of cancer detection in the physician's office.

Anon.: Early detection of cancer in physician's office. [Editorial.] Connecticut M. J. 19:208, March, 1955.

Natural Duration of Lung Cancer

During 1951 and 1952 637 patients with bronchial carcinoma were seen at Brompton and Royal Marsden hospitals. Of these, 135 were treated surgically, 210 by radiotherapy, and 292 were given no treatment likely materially to prolong life. There was sufficient information concerning 255 of the 292 patients for a study of the natural duration of the disease. Half of the 255 died within nine months of the appearance of the first symptoms; 14 per cent survived for more than two years. Duration of life was influenced significantly by the histological type of the neoplasm; by the presence of metastases at diagnosis; to a lesser extent, by the nature of the first symptom—hemoptysis, fever, chest pain, etc.; and by the age of the patient, but not by sex or by the lobe in which the tumor occurred. Half of the patients who had had symptoms for from four to five months before diagnosis died during the next three months. Half of those with symptoms of a year or more lived for another seven months—and a third of these lived for another year.

Bignall, J. R.: Natural duration of bronchial carcinoma. Lancet 2: 210-214, July 30, 1955.

Cancer of the Bladder

There are more than 5000 deaths each year in the United States from cancer of the bladder. Treatment of this disease is generally unsatisfactory. The five-year–survival rate is 10 to 15 per cent when the cancer has penetrated the bladder wall and 60 to 70 per cent when the tumor is confined to the bladder wall. Essential to a decision on the type of therapy are: determination of the number, size, and location of tumors; information as to the grade of malignancy obtained from biopsy and histopathology; and knowledge concerning coexisting, unrelated disease that might interfere with the patient's ability to tolerate the contemplated therapy. Small, noninfiltrative tumors may be treated effectively by cystoscopic fulguration, and, if proper treatment is given and periodic re-examinations performed, normal life expectancy is maintained. Larger, noninfiltrative tumors are more satisfactorily treated by cystotomy and electrocoagulation, with or without implantation of radon seeds. Infiltrative tumors confined to the bladder wall are completely excised with ample tumor-free margins. Segmental resection, with or without fulguration, and interstitial irradiation are possible in most cases. The results of therapy of infiltrative tumors that have penetrated the bladder wall into surrounding tissue are extremely poor. The operative mortality

is 10 to 15 per cent, and the five-year–survival rate but one fifth that of patients in whom the tumor is confined to the bladder wall. Palliation is afforded by cystotomy, excision, and fulguration. Cystectomy, with and without pelvic lymph-node dissection, is widely employed; and complete removal of all pelvic organs has been performed occasionally to control the refractory cancer. Urinary diversion, by ureteral transplantation to bowel, skin, or cecal or ileal pouches, is fraught with the difficulties of renal infection, hydronephrosis, calculi, and metabolic abnormalities from urinary absorption through the intestinal wall. The resulting renal insufficiency adds another burden to survival. External radiation is not recommended by the majority of urologists because of the accompanying agonizing and prolonged cystitis and the rarity of regressions. The use of radioactive isotopes is now under trial—gold, chromic phosphate, and cobalt in nylon sutures or embedded in urethral catheters. Experimentally, cancers of the bladder have regressed and even disappeared after diversion of the urinary stream by ureterocutaneous or ureterosigmoidal transplantation. Further surgical research and chemotherapeutic and hormone-therapy studies may open new and more satisfactory methods of treating cancer of the bladder.

Botchkiss, R. S.: Treatment of bladder tumor. New York State J. Med. 55:3634-3636, Dec. 15, 1955.

Cancer of the Oral Cavity

Cancer of the buccal cavity is becoming rather rare in Britain, but in India the mouth is one of the commonest sites of cancer. At the Tata Memorial Hospital, Bombay, 36 per cent of all cancers seen are of the buccal cavity. This great prevalence is due in part to the habit of chewing betel nut and tobacco. Cancer of the inner lining of the cheek is more common among Deccani Hindus who chew, than among Gujrati Hindus who smoke handmade "bidis." At the Indian Cancer Research Center, Bombay, it was found that the proportion of patients who chewed or smoked, or did both, was appreciably higher among those with cancer of the upper alimentary tract than among patients with cancer of other sites or among those without cancer. Chewing was found to be associated only with cancer of the buccal mucosa and of other parts of the oral cavity—alveolus, anterior tongue, and palate. The combination of smoking and chewing was associated with cancer of the base of the tongue and hypopharynx. Smoking was associated with cancer of the oropharynx, principally of the tonsils, and, to a lesser degree, with cancer of the esophagus. It is suggested that differences in racial susceptibility may account for the association of smoking with cancer of the upper alimentary tract in Hindus and with cancer of the bronchus in America and European countries and that bidis may differ from cigarettes by resembling cigars more closely in their effect.

Anon.: Cancer of the buccal cavity. Brit. M. J. 2:30-31, July 2, 1955.

Recurrent Cancer of the Rectum

Regardless of the type of surgical procedure, carcinoma of the rectum and rectosigmoid may recur. Treatment of local recurrences after combined abdominoperineal resection is useless, as total excision of all malignant tissue is seldom possible and external irradiation is of limited value, even palliatively. Results of treatment of recurrences after continence-preserving procedures—segmental resections and pull-through operations—are more encouraging. The presence of the bowel permits earlier recognition of recurrence, which may involve only the removable bowel wall and the perirectal tissue. Radiation therapy is also more successful after this type of operation than for recurrences after combined abdominoperineal resections. From 1940 through 1949, 116 cases of recurrent carcinoma of the rectum or rectosigmoid after continence-preserving procedures, for the most part done elsewhere, were seen at the Mayo Clinic. The lesions were treated in 104 of these cases. Five or more years after treatment, four of seventy patients irra-

diated, two of four treated by local excision or fulguration, and two of eleven who survived radical re-resection were living and without evidence of further recurrence. If the local lesion can be totally resected and there are no distant metastases, radical re-resection should be attempted. Results do not justify palliative resections. The unexpectedly good results of radiation were not limited to palliation: four of thirteen patients who survived more than two years were apparently cured. Probably 75 per cent of recurrences are from implantation of viable malignant cells within the anastomosis; these may be largely prevented by ligating the bowel above and below the lesion before any manipulation and by preliminary venous ligation in the most proximal portion of the regional mesentery. Prophylaxis at the time of the original surgery is the best solution to the problem of recurrent carcinoma of the rectum.

Black, B. M., and Kelly, A. H.: Recurrent carcinoma of the rectum and rectosigmoid; results of treatment after continence-preserving procedures. A. M. A. Arch. Surg. 71:538-542, Oct., 1955.

Screening for Cervical Carcinoma

Mass screening for carcinoma of the cervix is recommended as feasible when vaginal tampons are used. Since the tampon can be inserted and removed by the patient and smeared by a technician, the screening method does not require the services of a physician to obtain material for cytological study. Extensive facilities for examination are not necessary, and little time of patients or professional personnel is required. The vaginal tampon consists of a cylindrical core of cotton encased in a sheath of nonabsorbent nylon. The tampon should be inserted before retiring at night and removed the next day after the patient arrives at the detection center. Smears are obtained by stamping the end of the tampon upon a glass slide while exerting pressure with the thumb and index finger on the sides of the tampon. Gross material on the sides of the tampon is also pressed onto the slide. Smears of 97 per cent of 130 women with known carcinoma of the cervix were positive or indicated that the patient should be re-examined. Among 130 women with noncancerous uteri, 112 negative and eighteen equivocal results were obtained.

Brunschwig, A.: A method for mass screening for cytological detection of carcinoma of the cervix uteri. Cancer 7:1182-1184, Nov., 1954.

Radiotherapy in Cancer of the Thyroid

Of 157 patients with thyroid cancer, 112 were women and forty-five, men. One hundred eighteen were histologically proved: thirty-two papillary adenocarcinomas, usually considered least malignant; twenty-six alveolar, fifty-seven undifferentiated, and two Hürthle-cell carcinomas; and one fibrosarcoma. When complete surgical excision of thyroid cancer is impossible, the author believes radiotherapy is indicated. External irradiation should be used whenever macroscopic disease is left after surgery for papillary adenocarcinoma. In alveolar adenocarcinoma, external irradiation is a useful palliative measure and may hold metastases inactive for years. About half of the undifferentiated carcinomas of the thyroid respond to external irradiation. In patients without generalized metastases, five-year survivals have been obtained by irradiation. Radioactive iodine is the best method of irradiation in all cases of thyroid carcinoma in which adequate uptake can be induced. It is particularly indicated in well-differentiated alveolar adenocarcinoma after destruction of normal thyroid function.

Windeyer, B. W.: Cancer of the thyroid and radiotherapy: Mackenzie Davidson Memorial Lecture. Brit. J. Radiol. 27:537-552, Oct., 1954.

Survival in Presymptomatic Cancer

In seven and a half years at the Cancer Detection Center, University of Minnesota, 19,890 examinations of 7375 persons were made. One hundred and seventy-three cases of cancer (2.3 per cent) were discovered. One half of these persons were symptom free, and more than half of these were not found at the first

examination, indicating the value of periodic examinations. The survival rate in patients with asymptomatic cancer was 70 per cent for thirty-six months compared with 20 per cent for twenty-six months in those with symptoms at the time of diagnosis. The national five-year–survival rate is about 7 per cent. In the patients with cancer of the colon, there was a 93 per cent survival rate for forty-seven months in the asymptomatic group and a 36 per cent survival for fifty-four months in the symptomatic. In rectal cancer, the rates were 78 per cent for forty months in the asymptomatic and 33 per cent for fifty-five months in the symptomatic group, compared to the five-year–survival rate of 10 to 15 per cent for rectal cancers—demonstrating the advantage to the patient of early detection-center diagnosis. Precancerous lesions were found in 28 per cent of the total group. There was a 90 per cent survival for forty-seven months in the asymptomatic breast-cancer group and 90 per cent for twenty-eight months in the symptomatic group. By mass participation of the population in an annual cancer-detection–examination program the over-all five-year–survival rate for cancer could be raised from the present 30 to 33 per cent to between 70 and 75 per cent.

Hitchcock, C. R., and Sullivan, W. A.: Increasing the survivors of cancer through asymptomatic diagnosis of malignant disease; an evaluation of seven and one-half years' operation of the cancer detection center, University of Minnesota. Surgery 39: 54-69, Jan., 1956.

Thyroid Cancer in Children

Careful review of the literature and diligent search by questionnaire, letter, and personal contacts revealed 285 cases —138 published—of carcinoma of the thyroid in patients less than 15 years of age. Although the published cases give the impression that cancer of the thyroid in children differs markedly from that in adults both clinically and histologically, this study shows no remarkable differences. Treatment by radiation during infancy for enlarged thymus is shown definitely to be an etiological factor. Malignant tumors arose in nodular goiters in 30 to 60 per cent of the patients—a higher proportion than in adults. Slightly more than half the patients were female. Cervical lymph-node metastases were present in 64 per cent of the patients when first treated and 18 per cent of the metastases were bilateral. The prevailing idea that thyroid carcinoma is more prevalent in goitrous regions is negated by this study. In 92 per cent of the children, an attempt was made to eradicate the tumor surgically—excision, subtotal lobectomy, lobectomy, hemithyroidectomy, subtotal thyroidectomy, and total thyroidectomy. Only 42 per cent of the children received roentgen-ray therapy and 18 per cent received radioiodine therapy. Five children were treated in part by radium.

Winship, T., and Chase, W. W.: Thyroid carcinoma in children. Surg., Gynec. & Obst. 101:217-224, Aug., 1955.

Breast-Cancer Metastasis

The breast is the most common site of cancer in woman. In spite of the accessibility of the breast to examination and in spite of organized efforts toward encouragement of early detection of breast cancer by periodic self-examination and physical examination, the mortality rate is increasing. That the unsatisfactory status of therapy of breast cancer is in great part due to its early and widespread metastasis is shown by the fact that the survival rate of patients without axillary lymph-node metastases at the time of radical mastectomy is two and a half times that of patients with metastases. Since the survival rate depends on the extent of spread of the cancer at the time of operation, the mechanics of spread is of great interest to the physician. Cancer of the breast spreads (1) directly to adjacent tissues, as in Paget's disease, (2) by way of lymphatics, and (3) through the blood stream. Radical mastectomy is based on the assumption that spread of breast cancer is principally by the lymphatic route. In the original Halsted and Willy Meyer radical mastectomy, the axillary lymphatics were assumed to be the chief route of spread. More recently other groups of nodes have been given surgical attention.

Urban includes the removal of the internal mammary lymph-node chain; Gardner, the supraclavicular and internal mammary; and Wangensteen extends the dissection to include the supraclavicular space, the upper mediastinum, and the internal mammary chain. These several superradical mastectomies have not yet been shown to yield increases in over-all survival. Small, occult cancers were found in several autopsies of patients with axillary lymph-node spread before any lump could be felt in the breast, suggesting very early spread. Aberrant, distant metastases to lung, pleura, heart, adrenals, bone, brain, etc. are best explained as bloodstream spreads, some of which may occur before detection in the breast is possible by any means. Breast cancer is probably the most frequent source of metastases to bone and should always be suspected. In 724 consecutive patients with carcinoma of the breast, thirteen (1.8 per cent) had both breasts involved upon admission, and 5.7 per cent developed cancer of the opposite breast while under observation. In spite of this high incidence of bilateral cancer of the breast, routine bilateral mastectomy is not advised. It is suggested that metastases to ovaries and adrenals may explain some of the spontaneous remissions in cancer of the breast.

Fitts, W. T., Jr., and Patterson, L. T.: The spread of mammary cancer. S. Clin. North America 35:1539-1551, Dec., 1955.

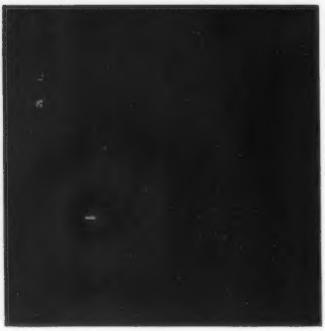
Cancer of the Gallbladder

Since the insidious onset of symptoms of gallbladder carcinoma simulates cholecystitis and cholelithiasis, diagnosis of cancer is rarely made before disease is extensive. Right upper-quadrant pain, dyspepsia, and food intolerance are the usual initial symptoms. Weight loss, anemia, unremitting jaundice, and a palpable mass are not noted until the disease is incurable. A few malignant tumors of the gallbladder are epidermoid, but more than 95 per cent are adenocarcinomas. The gross appearance of the gallbladder with cancer or chronic cholecystitis is similar unless the tumor is far advanced. By gross examination, three types of carcinoma may be recognized: (1) infiltrating scirrhous carcinomas cause the gallbladder wall to thicken and become firm; (2) papillary carcinomas seem to arise from a localized mucosal area and often grow within the lumen; and (3) colloid carcinomas are overgrowths of all mucosal elements. The operative mortality for cholecystectomy is higher than the incidence of cancer, but benign complications of cholelithiasis also cause many deaths if operation is not performed. Early surgical removal of the cancerous gallbladder is the only satisfactory treatment. If jaundice is noted or if a mass is palpable, cholecystostomy alone may be advisable. With few exceptions, a five-year survival after removal of a cancerous gallbladder has been noted only when a small malignant growth was detected during surgery for cholelithiasis. Cholecystectomy is recommended for all patients with cholelithiasis as prophylaxis against complications and carcinoma unless the patient is definitely unfit for surgery.

McCurdy, R. E., and Sawyer, K. C.: Cancer of the gallbladder: a report of twelve cases. Am. Surgeon 21:447-452, May, 1955.

If the just cure of a disease be full of peril, let the physician resort to palliation.

Francis Bacon: Historia Naturalis et Experimentalis, 1610.



a glance . . .

one-minute abstracts of the current literature on cancer . . .

Rehabilitation of the Laryngectomee

This conference among laryngologists and psychiatrists developed many interesting points helpful in adjusting the laryngectomized patient to his changed respiratory and speech functions. There was a difference of opinion on whether the larynx-cancer patient should be put in contact with a seasoned laryngectomee as an inducement toward consent to operation. A psychiatrist felt that preoperative psychological interviews were helpful. A laryngologist believed that the primary relationship with the patient should be held by the laryngologist who is actually to perform the operation and that the psychiatrist should appear only as an advisor and should remain in the background unless the patient is acutely disturbed. After the operation, the patient is usually depressed for a week or two but from then on he is almost euphoric. Some laryngectomees, after getting their artificial larynx or learning to speak with a buccoesophageal voice, talk incessantly. Many patients react less profoundly to the loss of the voice than to the tracheostomy tube and the fear of smothering. Roentgen-ray therapy is not so effective as surgery in laryngeal cancer. The former is often requested by singers and others who live by their voices, but even with this therapy the voice is usually not of quite the same quality as before treatment. Morale and motivation toward rehabilitation in these patients is fostered by the herd reaction in the many study and social groups composed of laryngectomees, usually referred to as Lost Chord Clubs.

Hollander, M. C., Ed.: The patient with carcinoma of the larynx; somatopsychic conference of the University of Illinois College of Medicine. GP 11:84-93, Feb., 1955.

Reconstructive Maxillofacial Surgery

The patient with a facial deformity is just as surely a cripple as he who has difficulties in ambulation owing to damage to the extremities. Physiological problems result from defects of the nose that interfere with breathing, from defects of the mouth that interfere with eating and drinking, and from defects of the eyelids that interfere with vision. Obvious facial deformities often produce crippling psychological and emotional response in the patient. The physician and surgeon should do everying possible to relieve the distress of these patients. Many facial deformities can be prevented by expert medical care and others can be corrected by appropriate reconstructive surgery. The most common malignant growth of the face is carci-

noma—basal-cell, the less malignant, and squamous-cell, the more. The postauricular and the anterior supraclavicular grafts are effective in the correction of post-excision defects of the eyelids and of the upper portions of the face. The skin of these areas more closely resembles the postauricular and the supraclavicular skin than that of any other surface of the body. The nose can be reconstructed by use of a tube pedicle graft from the neck or forehead or by a sickle flap from the forehead and scalp. Skin from the abdomen or other part of the body, in the form of pedicle grafts, can also be used, but better and quicker cosmetic results are obtained from neck and face tissues. Subtotal hemi-excisions of the mandible, with preservation, when possible, of the condyle for good functional reconstructive procedures, is to be preferred to complete hemisection for adamantinoma, the benign neoplasm that so frequently recurs and that may eventually become carcinomatous.

Walden, R. H.: Reconstructive maxillo-facial surgery. Connecticut M. J. 18:891-894, Nov., 1954.

Palliation in Breast Cancer

Sound palliative therapy in cancer of the breast requires a planned rather than a haphazard application of the several known methods—irradiation, hormonal, analgesic, and supportive. All these methods are self-limited in action, producing varying periods of neoplastic retardation. Experience is required in the selection of the order in which the several modalities are used most effectively, and each case must be individualized. Although it is impossible to stop the progress of the disease, intelligent use of the means at hand prolongs in tolerable comfort the life span of those with advanced breast cancer. Of all breast-cancer patients seen in large medical institutions, 60 to 75 per cent have operable lesions and are treated by radical mastectomy. Of these, about 60 per cent have axillary metastases. About one third of these patients survive five years; one quarter, ten years. Irradiation is used in therapy of inoperable breast cancer, of postsurgical spread, and of pain from bone metastases. Hormonal, analgesic, and supportive therapy—castration and administration of estrogens and androgens—are available to the family doctor to whom the care of most terminal cases falls. Some patients live remarkably symbiotic lives with cancer of the breast for ten or twenty years, while others succumb within a few months. Most cases can be considered terminal only when signs of the impending end appear. It is our responsibility to employ all methods at our disposal to see that the patient passes through this final zone with the least possible discomfort and apprehension.

Cantril, S. T.: The care of the patient with advanced cancer of the breast. Radiology 66:46-54, Jan., 1956.

Terminal Care of the Cancer Patient

Under the subtitle "not art or science alone but both," the author exhorts the physician to recognize his obligation to the terminal and dying gynecological cancer patient. The specialist and the home physician should work together to achieve the best possible care for their mutual patients. Too often the physician loses interest and tends to slough off care of the unresponsive case. It is perhaps natural that interest should be greater in disease for which we have a remedy than in a seemingly hopeless medical problem. But to consider a disease hopeless is often to render it so. Any chronic advancing disease, and especially cancer, creates social, economic, and emotional problems for the patient and the family, and the home physician who practices the art of medicine can help in their solution. He takes into his confidence a responsible member of the family and freely discusses all the problems involved. He decides whether and how the patient shall be told the diagnosis. He advises against sudden radical changes in the household routine. He arranges for adequate home care of the patient, drawing upon those organizations available in his community—the American Cancer Society, American Red Cross, Salvation Army, public health nursing association, county health department, etc.

He makes certain that the patient is not permitted to suffer unnecessary pain for want of medication, by frequent visits and administration of drugs of increasing potency—from aspirin, through codeine and demerol to morphine—and, if indicated, by arranging for rhizotomy or cordotomy. Above all, he does not shirk the distasteful frequent visit from which the patient derives such great psychological comfort and support.

Miller, N. F.: Terminal care for the gynecologic cancer patient. [After Office Hours.] Obst. & Gynec. 4:470-476, Oct., 1954.

Rehabilitation in Chronic Illness

Great advances have been made in the curative and preventive aspects of medical care, but rehabilitation—the third phase of medical care—that takes the patient from the bed to the job has been grossly neglected. Today the United States is faced with a growing tide of chronic diseases with concomitant disability. Scientific advances in reducing the death rates from infectious and communicable diseases and in public-health measures have resulted in an aging population that is more prone to chronic diseases, such as cardiac conditions and cancer. Rehabilitation requires co-operative effort of medicine and the ancillary services in health and welfare. A plea is made for young people seeking careers to give consideration to this relatively new and important medical specialty.

Neu, H. N.: Rehabilitation: the third phase of medical care. Nebraska M. J. 38:315-320, Sept., 1953.

Rehabilitation Service

During the past decade, rehabilitation has become accepted as the third phase of medicine, ranking in importance with the other two—preventive medicine and curative medicine. It is not sufficient that the medical profession limit its efforts to prevention of disease, maintenance of high standards of health, diagnosis, and treatment of disease and injury. It must also be concerned with the restoration of the disabled person to his fullest physical, mental, social, vocational, and economic usefulness. Rehabilitation should commence in the hospital as soon as the patient has recovered from the acute phase of his illness. His motivation must first be established, as rehabilitation can not be achieved in an unwilling or a passive patient. The professional services involved in rehabilitation include those of specialists in physical medicine and rehabilitation and all the other specialists of medicine, clinical psychologists, physical therapists, occupational therapists, speech therapists, nurses, social workers, brace makers, limb fitters, vocational counselors, and placement officers. Such a team assembled in one institution is more efficient than when scattered about the community. Patients formerly regarded as totally and permanently disabled can be made to show remarkable improvement in almost every instance. The terms "incurable" and "hopeless" need redefinition.

Strong, G. F.: Rehabilitation. Canad. M. A. J. 72: 247-252, Feb. 15, 1955.

The Chronic Patient

The Commission on Chronic Illness makes recommendations for developing and utilizing facilities for patients with long-term illness, including those with incurable and terminal cancer. Rehabilitation is an essential element of adequate care. Most long-term patients can best be treated at home during much of their illness. They prefer this and to have their personal physician. He should participate as continuously as possible in the medical care at all stages, including the essential periods of hospitalization. In addition to the services of the physician, long-term care of many patients requires nursing, dental care, social work, attention to nutrition, homemaking, housekeeping, psychotherapy, occupational therapy, physical therapy, and other rehabilitative services. Facilities and services of general hospitals should be organized, extended, and co-ordinated to provide hospital care for the long-term patient who can be managed only ineffectually at home. The general practitioner should equip himself with

knowledge of new methods of treating long-term illness, learn to use the services of other health professions and agencies in the care of his patient, and become familiar with pertinent community resources.

Commission on Chronic Illness: Care of chronically ill patients. [Abstr.] J. A. M. A. 157:953-955, March 12, 1955.

Palliation in Intracranial Cancer

The nasopharynx is a common site of carcinoma. The anaplastic type of cancer (Schmincke tumor), instead of growing out into the nasopharynx, may grow into the recesses and foramina at the base of the skull, causing very severe head pain along branches of the first, second, and third divisions of the fifth nerve. This pain may be relieved in some instances by sectioning of a number of cranial nerves on the involved side. This is a major procedure that involves sectioning the posterior root of the fifth nerve, because the trigeminal innervates the dura, the ninth nerve, and the first three cervical sensory roots on that side. This can all be done through a simple posterior or suboccipital incision. When this does not bring the desired relief from pain of cancer at the base of the skull, unilateral lobotomy may give some relief during the few months of survival.

Merritt, H. H., Moderator: Headache: its etiology and management. Bull. New York Acad. Med. 31: 835-856, Nov., 1955.

Reconstruction after Head and Neck Surgery

The improved survival rates resulting from increasingly radical operative procedures are not occurring in cancers of the head and neck. Surgeons are reluctant to use in the head and neck the same principles of wide and free excision employed in internal and in clothing-covered sites. Another factor responsible for lag in radical surgery of the head and neck is the multiplicity of, and often lack of cooperation among, the specialists concerned. If the surgeon will prepare a pedicle or flap over the acromiopectoral region two weeks or so in advance of the excision of a carcinoma of a relatively low grade of malignancy, he need not hesitate to excise widely the skin, subcutaneous tissues, muscles, bone, and mucous membranes adjacent to the lesion, thus unquestionably increasing the chance for cure. If such soft-tissue flaps or tubed pedicles have been prepared in advance, bone grafting in substitution for malar and mandibular defects may be employed immediately. Excision of rapidly growing and highly malignant cancers should not be delayed for this reconstructive preparation, but patients with slowly growing carcinomas of the oral cavity should not be denied the benefits of radical surgery or left in the misery of unacceptable facial deformity and unendurable complications, such as salivary fistula. Concern over the mutilating effect of radical surgery of the head and neck is minimized by careful preoperative plans for rehabilitating, reconstructive surgery.

Conway, H.: Carcinoma of the head and neck: plea for more radical surgical excision and the immediate employ of the steps of reconstructive surgery. [Editorial.] Surg., Gynec. & Obst. 101:766-767, Dec., 1955.

Palliative Chemotherapy in Cancer

One cancer patient in three is alive five years after the diagnosis has been established. Thus, curative therapy constitutes a comparatively small part of the total treatment effort in the management of cancer, palliative therapy far exceeding it in volume. In the palliative medical treatment of cancer, aside from the drug control of pain, chemotherapy plays the chief role. In spite of the fact that no presently available drug can cure any disseminated neoplastic disease, there are a number that are useful and indicated in the palliative medical management of several human tumors. In inoperable carcinoma of the prostate, orchiectomy and daily administration of 5 to 15 mg. stilbestrol or other estrogen is the treatment of choice. In inoperable or recurrent widespread cancer of the female breast, testosterone propionate, 300 to 600 mg. weekly, will give sympto-

matic relief in 80 per cent of patients. In postmenopausal women, estrogens may be substituted for androgens. In cancer of the lung, intravenous nitrogen mustard may give transient improvement if tumor infiltration of the mediastinum leads to pressure on the great vessels and interference with venous return to the heart. When surgery and radiotherapy are no longer advisable in cancer of the ovary because of the extent of disease, nitrogen mustard or triethylenemelamine, 5 mg. daily for three or four days, gives remissions of six to eighteen months in about 25 per cent of patients. In acute leukemia, cortisone, amethopterin, aminopterin and 6-mercaptopurine are indicated. With serial use of these drugs, the former 5 per cent one-year survival of leukemic children has been increased to 50 per cent. Other neoplastic conditions in which chemotherapeutic progress has been made are Hodgkin's disease, lymphosarcoma, and multiple myeloma. Concurrent use of general supportive measures, palliative radiotherapy, and surgery, together with antitumor chemotherapy, often extends the period of useful and comfortable living in patients with disseminated neoplastic disease.

Gellhorn, A.: Cancer chemotherapy. Bull. New York Acad. Med. 31:750-756, Oct., 1955.

Reconstruction of the Face after Cancer

Surgical removal of cancer of the face should be preceded by the formulation of a complete plan not only for complete excision but also for functional and cosmetic restoration. Conservative treatment, often preferred in minimizing disfigurement, is often followed by recurrences that may become fixed to bone or cartilage or metastasize to the neck. Radical excision gives a better chance for permanent cure. It is recommended that the surgeon himself take the biopsy so that it will not interfere with the pedicle flap or the rotation flap he may need to use in his reconstruction of a large defect produced in excision of the tumor. Even if primary closure of the wound is possible by considerable traction, unsightly distortion of facial features may result. In such instances, the defect should be closed by skin graft or by a local rotation flap. Radical excisions of lesions that involve vital structures of the face, such as the nose, eyelids, mouth, etc., result in loss of parts of these structures, requiring reconstructive surgical procedures, often in several stages. Modern reconstructive surgery provides adequate restoration, functional and cosmetic, for the deformities and disabilities consequent to radical surgical excision of neoplasms of the face.

Diecidue, A. A.: Plastic surgery in cancer of the face. Connecticut M. J. 19:1-4, Jan., 1955.

Rehabilitation of Cancer Patients

Rehabilitation is the process by which the survivor of an experience damaging to body or mind is restored as nearly as possible to his previous level of activities. It aims first to repair the physical damage and to restore function of the damaged body part or to replace by prosthesis and then to restore the total function of the individual—physical and mental. Lack of success in rehabilitating the cancer survivor is due less often to physical and environmental factors than to his own psychological and emotional problems inherent in the resumption of patterns of living believed to be compromised by the disease and its treatment. The vast majority of survivors are physically able to resume their previous occupations or activities. Physical rehabilitation beyond conventional convalescence is rarely required by the cancer survivor. Impaired productivity is usually related to psychological factors. Adjustment to cancer or to the results of therapy—colostomy, mastectomy, laryngectomy, etc. — implies more than a return to work and productivity. Adjustments must be made in every aspect of the patient's life. He should be assessed in all significant activities, comparing previous with present functional levels—his behavior in work, in recreation, and socially. Other than actual physical disability, hypochondriac notions of body injury and fragility and fears of unacceptability to others are the main

causes for restricted activity in gainful and useful employment. Patients often reason that serious permanent deficits in health and performance must necessarily follow the radical mutilating surgery for this serious disease. They feel that they are lucky even to survive. The preoperative expectation of serious body damage is converted postoperatively into hypochondriac response that is based on imagined irremediable injury. Such patients request part-time work or employment under discriminating, protective conditions. Colostomy is often believed by the patient to preclude normal digestion, absorption, and nutrition. Loss of breast, uterus, or prostate is often believed to bring unavoidable disaster, premature aging, and depleted vitality. Depression and paranoid reactions frequently develop to interfere with employment with other workers. The spouse may greatly help or hinder rehabilitation. The family doctor knows the patient and his family best. Upon him is the responsibility of psychological rehabilitation. His best treatment is prophylaxis by the early establishment of a close, warm relationship with the patient that permits easy communication and free discussion of irrational beliefs and misconceptions. The doctor should be seen as the patient's protector and should establish in the patient a feeling of beneficial dependency, especially in the early stages.

Sutherland, A. M.: Psychologic barriers to rehabilitation of cancer patients. Postgrad. Med. 17:523-526, June, 1955.

Palliative Radiotherapy in Cancer

In addition to its actual curative effects in cancer of the skin, lip, larynx, cervix, and fundus, radiation therapy has amazing, long-range palliative effects in frankly advanced malignant disease. Among the situations in which radiation therapy is of major palliative importance are: (1) bone—pain, fracture, disseminated disease; (2) local—pain, ulceration, tumefaction, delay of spread, bleeding, pleural effusion; (3) lymph nodes—ulceration, tumefaction, delay of spread, bleeding; (4) pulmonary metastases—cough, bleeding, pain, venous obstruction; (5) lymphomas and leukemias—fever, malaise, local tumefaction, splenic enlargement; (6) indirect hormonal effect—radiation to ovaries. Enthusiastic though we may be to obtain total and unequivocal cures for cancer, the prolongation of useful and enjoyable life is an equally noble aim for the physician.

Chamberlain, R. H.: Modern therapeutic measures in cancer and their effectiveness: radiology. Bull. New York Acad. Med. 31:746-749, Oct., 1955.

Developing Rehabilitation Services

The entire problem of rehabilitation service is a public health function. Such facilities should be developed in hospitals, both general and special, wherever feasible. The average 200-bed community hospital could profitably allot 20 per cent of its beds to convalescent and rehabilitation care. Voluntary health agencies with funds available for rehabilitation of patients with specific diseases may be looked to for co-operation. It is first necessary to appraise the need for such service and the relative importance to the particular hospital of each of the disabling chronic diseases. For the organization of the service differs according to the prevailing type of disability—accident, cardiac, tuberculosis, cancer, etc. Rehabilitation is comprised of all treatment and training (beyond the ordinary treatment of disease, per se) of the sick and disabled that is designed primarily to increase or restore social or economic independence and usefulness and to diminish personal, social, or economic dependency. There is a great need for personnel, both medical and paramedical, especially trained in the procedures of rehabilitation. Physicians and surgeons generally are negligent and indifferent toward this field of management of disease. Rehabilitation of the patient is as much a part of the physician's responsibility as are diagnosis and treatment of disease.

Levin, M. L.: Action areas in rehabilitation; developing rehabilitation services. Am. J. Pub. Health 44: 741-743, June, 1954.

Rehabilitation of the Colectomized Patient

One of the most frequent reasons for colostomy is neoplastic disease of the

colon necessitating resection. Important factors in the patient's care of the colostomy are: (1) a constipating diet, (2) regular bowel habit time, and (3) irrigation for complete emptying of the bowel. Instructions to the patient should begin in the hospital. An absorbent pad should be worn under an elastic girdle to simplify cleansing after accidental soiling, and extra pads should always be carried by the patient for replacements. Eating should be encouraged rather than discouraged. The patient soon learns what foods and how much he should eat. Some patients have daily bowel movements by diet alone, but most patients require irrigation to evacuate the fecal matter completely. Unless the bowel is thoroughly emptied, small amounts of stool are apt to ooze from the colostomy frequently during the day. The physician should be able and willing to make helpful suggestions when the patient has difficulties, thereby aiding in maintaining the patient's morale. With proper management of the colostomy, there should be no unpleasant odor about the patient or his clothes. The patient should be encouraged by being reminded that he has a colostomy because he was willing to lose a diseased part soon enough to survive.

Lichtenstein, M. E.: Colostomy. S. Clin. North America 35:1347-1361, Oct., 1955.

Rehabilitation

Rehabilitation is the process of assisting the handicapped person to realize his potentialities and goals physically, mentally, socially, and economically. Its aim is to train the patient to live within the limits of his disability but to the peak of his capacity. Complete rehabilitation organizations must provide psychiatrists; physical therapists; occupational therapists; speech and hearing therapists; clinical psychologists; nurses; a prosthetic service; vocational evaluation, counselling, and training service; social service; and a therapeutic recreation service. Few hospitals find such a program possible. Yet investment in some type of rehabilitation service is sound even for the small hospital, since patients given the benefit of rehabilitative measures (1) recover more promptly and thus reduce their stay in the hospital, (2) are less apt to require readmission, and (3) are helped to a degree of self-care that will greatly reduce the nursing burden. Motivation is the greatest need of many patients. They must be persuaded that they can regain or compensate for a great part of their lost abilities. The earlier this is done the better, lest the patient become irretrievably discouraged and develop an uncorrectable attitude of dependency. Need for an effective rehabilitation service is rapidly increasing with the increase in chronic degenerative diseases, including cancer, in our aging population.

Anon.: Rehabilitation. [Editorial.] J. A. M. A. 159: 1540, Dec. 17, 1955.

Palliation of Prostatic Cancer

Most patients with prostatic cancer are beyond hope for cure when first seen; relatively few are treated for cure by radical perineal or retropubic prostatectomy. Hence the treatment of prostatic cancer becomes largely palliative — conservative surgery with hormonal control. One of the authors' patients has survived twelve years after transurethral prostatectomy and bilateral orchiectomy as the only operative procedures. Patients without urinary symptoms but with signs and symptoms of extension of disease are treated by orchiectomy alone. If the patient has urinary symptoms with residual urine, he should have transurethral resection as well as orchiectomy. If the patient has urinary symptoms without metastases, he should be given transurethral resection and frequent examinations for regrowth or extensions, which may be controlled by female-hormone therapy or orchiectomy. The patient with symptoms but no signs of metastases should have resection of the gland, and, if it proves to be cancerous, bilateral orchiectomy. Patients who are nauseated by adequate dosages of stilbestrol should be given bilateral orchiectomy. When roentgenographic examination and elevated acid phosphatase show the presence of metastases, bilateral or-

chiectomy is indicated, with transurethral resection in the presence of urinary symptoms and without it in their absence. When recurrence of symptoms and regrowth of the gland occur in spite of orchiectomy and stilbestrol therapy, certain cortical hormones may give an added period of control. Sooner or later all patients will fail to respond to this palliative therapy, necessitating recourse to the older methods of terminal care, such as opiates, etc., but in this age group many will succumb to intercurrent disease before cancer of the prostate becomes fatal.

Milner, W. A., and Garlick, W. B.: Modern treatment of carcinoma of the prostate. New York State J. Med. 56: 100-101, Jan. 1, 1956.

Rehabilitation after Cancer Therapy

The rehabilitation aspect of the cancer problem has not received the attention it merits. The general health of the patient is lowered by the disease, by the major surgical procedures, and by the radiotherapy. When definitive hospital treatment is finished the patient no longer requires a hospital bed but he is still not fit to return to his usual activities. He requires supervised convalescence and rehabilitation either at home or in some institution designed especially for the purpose, such as the rehabilitation home established at the Hill of Tarvit, Cupar, Fife, in December, 1952, and those more recently opened in London and Tiverton, all sponsored by The Marie Curie Memorial Foundation. All patients admitted have been benefited greatly, have improved markedly in physical fitness, and have derived a great moral uplift. The atmosphere of these institutions is that of the home rather than of an institution. There are provisions for occupational therapy, as well as a library, television, and radio. Patients are encouraged to exercise in the gardens and surrounding countryside. Important aspects of treatment include rebuilding the patient's physical condition; restoring nutrition, muscle tone, and development; and the correction of any blood deficiency. The diets are high in protein and calories and contain adequate vitamins. Formal training is given in the management of colostomy and tracheostomy; speech therapy, after laryngectomy and laryngopharyngectomy; instruction concerning the wearing of artificial limbs. Radiation reactions receive required treatment. Psychological reactions are studied and corrected. Patients' morale and motivation to return to their usual responsibilities are restored.

Raven, R. W.: Rehabilitation of patients after treatment for cancer. Brit. J. Phys. M. 18:35-36, Feb., 1955.

Pharynx and Esophagus Reconstructed from Left Colon

Since cancers of the hypopharynx and of the esophagus commonly recur even after the most radical excisions, the main objective of surgery must be temporary palliation of symptoms. Relief of dysphagia is immediate and complete after intrathoracic esophagogastric anastomosis in those patients who survive the operation for carcinoma of the esophagus. In order to relieve the patient operated upon for cancer of the postcricoid region from the inconveniences of pharyngostomy and tube feeding, complete closure of the pharyngeal anastomosis must be obtained. Frequently the cancer recurs before this can be accomplished because repeated reconstructive operations, such as pharyngogastrostomy or anastomosis of the pharynx with the esophagus or with the jejunum are required—and these are not always possible or satisfactory. The authors, impressed by Egidi's (Rome) successful preparation of an antethoracic esophagus from the transverse colon, suggest similar use of the left colon for immediate reconstruction of the pharynx and esophagus after pharyngectomy and esophagectomy. A suitable long stump can be prepared from the left two thirds of the transverse, descending, and upper sigmoid colon, nourished satisfactorily by the middle colic and marginal arteries. The blood supply was improved by adopting a two-stage procedure, the first stage consisting of ligation of the left colic, the accessory left colic, and the first sig-

(Continued on page 92)

AIDS IN THE REHABILITATION

Left. Chondrosarcoma removed by hemipelvectomy. Out of bed on sixth day; discharged on fiftieth day; wound healed completely on ninetieth. Right. Prosthesis used successfully. Patient well and without recurrence five years after operation. (Service of Dr. B. L. Coley.)

One laryngectomee instructs another in esophageal voice, Philadelphia Laryngects Association.

OF THE CANCER PATIENT

Left. Chondrosarcoma of the upper end of the humerus removed by interscapulothoracic amputation. Right. A prosthesis can be provided for this type of amputation. Although it serves principally a cosmetic purpose, some functional use can be acquired; for example, objects can be supported by it. (Service of Dr. B. L. Coley.)

Prosthetic restorations being made in the laboratory. Allegheny General Hospital.

moid arteries. Two to three weeks later the reconstructive procedure was completed via the presternal route, successfully restoring continuity with the stomach. Speech training was started as soon as the anastomosis was healed, using the displaced colon as a reservoir for a pharyngeal voice.

Goligher, J. C., and Robin, I. G.: Use of left colon for reconstruction of pharynx and oesophagus after pharyngectomy. Brit. J. Surg. 42:283-290, Nov., 1954.

Palliative and Rehabilitational Home Care

Proposals are made for organized home care for long-term patients, including those with chronic disease, such as cancer. Advantages of home care over care in hospitals for these patients include: less expense is incurred by the patient and by the community; the patients are spared the pain of long separation from their families; they need not be humiliated by accepting charity and by lack of funds, sometimes the result of previous, expensive treatment; and the home is more pleasant both physically and psychologically than hospitals and other institutions. Even those patients who are able to pay for full institutional service during initial medical and surgical care, convalescence, and rehabilitation do better in their own homes after therapy of the acute stage if adequate care is available there. Members of the patient's family can devote more time to his convalescent, palliative, and rehabilitative care than can the institutional physician and his technician assistants. Family members are also more interested in motivating the patient toward self-care and occupational rehabilitation. Dental care, so often neglected in the chronic patient at home, is important in the preventive and rehabilitative aspects of many conditions. Adequate home care requires the combined functions of medical, dental, vocational, guidance, and welfare services. The family physician, under whose care the patient falls upon discharge from the hospital, should acquaint himself with these several services as they are available in the community and make certain that his patient fully utilizes their benefits. Medically, financially, socially, and emotionally home care is better than hospitalization for many patients requiring long-term services.

Kurlander, A. B.: Problems of organized home care for the long-term patient. Pub. Health Rep. 69:823-828, Sept., 1954.

Management of Pain in Cancer. Book Review

This guide-book—by ten contributors—for the family physician details all the generally accepted procedures in the palliation of incurable cancer. A great part of the text is devoted to medical treatment and minor surgical procedures that can be performed by the general practitioner himself, although the more complicated and technical methods of pain control—nerve blocking, nerve section, chordotomy, tractotomy, leukotomy, radiation therapy, psychotherapy and hypnosis—are also described and in sufficient detail to show the practitioner when they are indicated and to whom he can turn for help. The chapters of greatest use to the physician in his care of the terminal cancer patient are those on systemic analgesics, and hormonal and chemical palliation. These chapters give specific therapeutic recommendations, including dosages of the several remedies, in sufficient detail to be thoroughly practical. The book should be useful to every physician interested in combating pain in cancer or other chronic disease.

Schiffrin, M. C., Ed.: Management of Pain in Cancer. Chicago. Year Book Publishers, Inc. 1956. 245 pp. $4.50.

Palliative Surgical Treatment of Cancer

George T. Pack, M.D.

The diagnosis of arteriosclerosis, chronic nephritis, diabetes mellitus, myocarditis, coronary vascular disease, osteitis deformans, and many other degenerative conditions is accepted with some equanimity and even optimism by the majority of patients; yet, in the category of end results of treatment they are all incurable diseases. Even in cases of tuberculosis or of pernicious anemia one refers to an arrest rather than to a cure. When confronted with one of these incurable conditions in his own person, the patient asks of his physician only such treatment as lies within the realm of possibility, hoping that it will successfully arrest the disease for the time being, avoid the attendant complications and disabilities, and prolong his life in comfort. Not so is the attitude of the same patient and his family if the diagnosis be cancer, for in this event nothing short of a guarantee of cure seems to suffice. An expression by the physician of a reasonable doubt concerning an ultimate cure or a statement covering the statistical chances (if less than 100 per cent) frequently leads to a profound reaction in which a decision is made to refuse all treatment, surgical or radiological. In other words, palliative treatment is eagerly accepted for all incurable diseases except cancer; its employment for cancer generally is regarded with skepticism and without enthusiasm. In the eyes of the family, the patient is practically dead the moment a pronouncement of incurability is made.

The medical profession has not been faultless in this regard. The accent constantly has been on cure rather than on palliation; naturally, this has been a commendable effort. As the culmination or reward for their efforts, published figures on the end results of treatment usually present the percentages of so-called five-year cures or survivals without recurrence for five years. The reader accepts this figure as the sole expression of life salvage in the group of patients studied. If an economist were to analyze the same data, he undoubtedly would devote some attention to the great group of cases that usually are summarily dismissed from consideration as failures of cure. This analysis would bring to light and properly accredit those palliative benefits derived by the short-term (less than five-year) survivors.

If surgical treatment does prolong the lives of incurable-cancer patients, there should be some means of expressing the advantage in a statistical manner and such results should be duly published. Only in this way can comparable results of palliative treatment properly be evaluated and improved. One method is to determine for each regional or histological variety of cancer the average length of life without treatment from the time of onset of symptoms to death. Daland and Nathanson have done this for several types of cancer, and the figures that they have provided for the percentages of patients living without treatment for one, two, three, four, and five years can be plotted in a curve that constitutes a natural yardstick against which the cancer therapist can plot the results of palliative treatment.

The prolongation of life itself is, of course, not the only measure of palliation. No one wishes to live longer in order to suffer more. The indications for palliative efforts are the relief of pain and discomfort, the healing of ulcerated lesions, the lessening of hemorrhage and infection, the repair of certain pathological fractures, the healing of metastases in bone, the eradication of cough and dyspnea, the restitution of sleep, the delay in generalization of the cancer, and many other well-known and admitted benefits of treatment. It is possible that well-judged and appropriate palliative surgery might accomplish one or all of these benefits without pro-

longing the life of the individual, yet who would deny that such efforts are worth while?

Surgical measures that have been employed for palliative purposes are: resection of offensive cancers that are infected, foul, bleeding, or obstructed; the abolition of pain by the severance of sensory-nerve tracts or by the injection of alcohol into proper nerves; and the relief of obstruction by short-circuiting operations, chiefly on the gastrointestinal and urinary systems. Radiologists have an even greater scope for their palliative efforts in the use of roentgen rays and radium, the only agents known to effect the cure or palliative relief of cancer, with the preservation of the tissues that contain the cancer.

The inoperability of an abdominal cancer in the presence of extensive hepatic metastases or peritoneal carcinosis is unquestioned. If a patient, on laparotomy, is found to have a few metastases in the liver without hepatic dysfunction or hard, irremovable retroperitoneal lymph nodes, one may still proceed with the removal of a cancer of the stomach, colon, or rectum, because experience has shown that gastric, colonic, or rectal resection is the best palliative measure for such cancers, though admittedly incurable. The measure of palliation accomplished by such resection is not necessarily the longer duration of life but the degree of freedom from distress. A lobectomy for a solitary metastasis in the lung of a patient who had experienced an amputation of an extremity for osteogenic sarcoma would have been considered meddlesome surgery some years ago, but not in the light of the present-day viewpoint. Palliative surgery may run the gamut from simple pleurocentesis for effusion to a major amputation for an extremity that is a painful, useless, disabling encumbrance. Total right or left hepatic lobectomy for unilateral metachronous metastases has been accomplished successfully in patients who have had their primary cancers previously removed without local recurrence; palliative survival in good health has followed for from one to two years. A mutilating, palliative operation that some patient might refuse would be accepted gladly by another; for example, a young mother of three minor children, who had been told repeatedly of the inoperability of her incurable uterine cancer, rejoiced at the decision to perform a pelvic evisceration. The indignity and the disability after the loss of all pelvic organs was not too great a price to pay for one or more precious years of life in which to care for her dependent children. What would any of us take for our last year of life if it could be lived in tolerable comfort?

Many operations designed for the cure of cancer achieve in too many instances only a palliative end result. If inoperability were an absolute state and not a variable one, dependent in some cases on the criteria of the surgeon, the term would be synonymous with incurability. The unpredictable behavior of cancers and the immeasurable host resistance of organs and tissues to the growth of cancer combine in creating many intangible factors that make the early cancer occasionally incurable and the advanced cancer sometimes controllable. The very nature of the disease, the infirm and often aged patients in whom it so frequently develops, and the radical character of the numerous operations designed to combat it, all conspire to make the surgical treatment of cancer a hazardous venture for the patient and often an ordeal for the surgeon. With the knowledge of the inevitability of death from cancer that is not treated, it seems unnecessary to state that no surgeon would refuse a patient the slightest chance for cure, or even relief, because of a fear of criticism for failure. At the time of laparotomy, for example, a surgeon may be compelled to render judgment absolutely governing the life of the individual, the decision necessitating a matter of a few minutes as compared to days and weeks of courtroom deliberation by judge and jury. The closure of an abdominal wound on a cancer that obviously is hopeless always is done reluctantly, but the abandonment of an operation that is of questionable accomplishment must plague the conscientious surgeon for many sleepless hours. He must worry whether his defini-

tion of inoperability is in his state of mind or moral courage or in the actual stage of the cancer. An aggressive attack on cancers presenting almost insuperable technical difficulties will sometimes result in palliative relief and occasionally in cures, but, of course, with mounting operative fatalities. Under these conditions no one would impugn the good intent of the surgeon.

KINESCOPE 15: THE MANAGEMENT OF ADVANCED CANCER

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In spite of continuing improvement in early diagnosis and attempts at curative therapy, the management of patients with advanced cancer remains as a major problem for many practicing physicians. The time has passed when terminal cancer patients are simply transferred to a nursing home to await death. Much can be done for patients with extensive neoplastic disease to provide significant periods of useful and comfortable living.

This program covers such topics as nutrition, electrolyte disturbance, the management of pain by drugs or neurosurgical procedures, the indications for palliative radiotherapy, and the psychological aspects of cancer.

This kinescope is available through your Division of the American Cancer Society. Running time: 46 minutes; 16-mm. color with sound.

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Please note: Information about services available to the physician to aid in the care of the cancer patient can be obtained through your local unit of the American Cancer Society.

Palliative Medical Therapy of Cancer

F. Homburger, M.D.

In a broad sense, palliative medical cancer therapy includes any and all medical measures designed to alleviate, soothe, or moderate symptoms of cancer patients without really curing. This would include all chemotherapeutic measures at present available for the palliative treatment of lymphomas and leukemias, a subject beyond the scope of this discussion and most thoroughly covered in previous papers published in this journal.[3, 4] It would also include palliative surgical procedures that are discussed elsewhere in this issue.

In its narrower sense, palliative medical therapy has come to be regarded as comprising all of those measures that are intended to render more comfortable those patients who have advanced or recurrent neoplasms other than leukemias and lymphomas and who are incurable by the methods of surgery and radiation.

Some of these methods are aimed at the suppression of tumor growth and are quite specific for certain neoplasms, while they are useless or far less effective for others. Thus, antiandrogenic chemotherapy is effective in many cases of cancer of the prostate, not only in alleviating pain but in actually extending the life span beyond that of untreated patients. Estrogens and androgens, when used with discrimination, may considerably improve the lot of patients with cancer of the breast, although life may not be significantly prolonged by such therapy. Radioactive iodine may slow the course of some thyroid neoplasms considerably.

Other palliative measures are quite generally effective in ameliorating the general condition of cancer patients, even though they do not alter the progressive course of the neoplasm itself. Such measures combat pain, nausea, and depressive states; stimulate appetite; confer a sense of well being; and in general, if wisely used, enable the patient to live a reasonably active life in spite of the cancer until very shortly before death.

All available palliative medical methods should be combined as long as possible with such palliative surgical and radiological methods as may be indicated. In these days of chemotherapeutic thinking it is too often forgotten that carefully aimed roentgen rays often can achieve remarkable local relief in patients who have metastases from various primary tumors.

A full description of medical palliative measures would take much space and such an extensive discussion is available elsewhere.[1]

In the following, some rules of thumb for the medical palliation of incurable-cancer patients will be outlined, as they may be useful for the practitioner.

First and foremost, the physician should never consider the plight of his incurable-cancer patient a hopeless one. He must think of these desperate situations as a challenge to his science, his art, and his compassion.

It is easy nowadays to cure pneumonia, relieve complaints of arthritis, control diabetes, and perform other medical miracles. It is still difficult to preserve the patient with progressive cancer in a reasonably tolerable state, but it is not impossible.

For cancer of the prostate, cancer of the breast, and cancer of the thyroid, there are fairly standardized therapeutic methods that can be applied to most cases and may be combined with any of the other unspecific measures to be discussed.

Breast Cancer

Premenopausal women with recurrent cancer of the breast should first be castrated, preferably by surgical methods.

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Next, they should be given androgen therapy to tolerance unless there is hypercalcemia, which renders the use of androgens dangerous in patients with widespread bone metastases. The limiting factors of androgen therapy are salt and water retention and virilization (hirsutism, voice changes, clitoral hypertrophy, eroticism). A low salt diet and the use of a weakly androgenic derivative of testosterone may facilitate this therapy. If there are only soft-tissue lesions and if they fail to respond to androgens, a cautious trial with estrogens may be justified. It must be kept in mind, however, that estrogens may accelerate tumor growth in women who are five years or less past their last menstrual period.

In women five or more years beyond the menopause, estrogens are given for soft-tissue metastases, androgens for bony metastases. Sometimes androgens and estrogens may be combined. Whenever androgens are being used, serum-calcium levels must be watched at about weekly intervals, and therapy is discontinued if serum calcium begins to rise. The customary dosages for androgens and estrogens are as follows:

Androgens. TESTOSTERONE PROPIONATE—50 to 100 mg. intramuscularly three times a week; METHYLTESTOSTERONE—100 mg. daily by mouth or sublingually; METHYLANDROSTENEDIOL (Stenediol)—100 to 300 mg. daily by mouth or 150 mg. weekly as subcutaneous pellets; other derivatives in doses equivalent to these or as suggested by the manufacturers.

Estrogens. DIETHYLSTILBESTROL—1 to 5 mg. three times daily by mouth; ETHINYL ESTRADIOL—0.1 to 1 mg. three times daily by mouth; other preparations in doses equivalent to these or as suggested by the manufacturers.

Prostatic Cancer

In cancer of the prostate, castration, estrogen administration, or both often provide dramatic relief. Castration is effective rapidly; estrogen therapy requires some time before its benefits become apparent. In cancer of the prostate, the serum acid phosphatase provides an objective measurement of the response to therapy, especially when the sensitive Fishman-Lerner method is used.[2]

Cancer of the thyroid, with metastases that pick up radioactive iodine, will benefit from this treatment. Thyroid by mouth may slow the growth of such tumors by inhibiting the thyroid-stimulating hormone of the pituitary. On the other hand, thyroid-stimulating hormone may aid in increasing the uptake of radioiodine by the tumor. In such cases the practitioner will do well to secure the advice of an endocrinologist who is experienced in managing cancers of the thyroid.

The most frequent manifestations of any advancing cancers are pain, nausea, vomiting, formation of hydrothorax or ascites, weakness, fatigue, cachexia, and mental depression.

The alleviation of pain is a precious art and cannot be accomplished by writing an order for morphine around the clock or pro re nata. There is no effective analgesic that does not have some side effects, such as nausea, drowsiness, constipation, or gastric irritation. Therefore the analgesics must be used sparingly, yet in effective doses. Salicylates are often not used to their best advantage. It is surprising how much relief of severe pain may be obtained by high doses of salicylate (up to 12 gm. daily of acetylsalicylic acid) given throughout the day in combination with antacids and milk. Aminopyrine derivatives, phenacetin, and others that are shunned in medical practice because of their toxicity are often helpful in these patients whose life expectancy is short. In more severe pain, this basic analgesia is combined with any one of the newer substitutes for morphine. At night, barbiturates, chloral hydrate, or some of the newer synthetic soporifics are added to the analgesic and narcotic combination to facilitate sleep. Alcohol in any form that is acceptable to the patient may be used with regularity.

Eventually morphine itself or some of its substitutes may have to be used—and in increasing doses. For this, the parenteral

route is best. The morphine preparations should be used alternately, no one type of narcotic being given for more than ten days at one time. Such a system will extend the effectiveness of this regimen and may permit obtaining relief with relatively small doses. The aim is not to prevent addiction. This is not to be feared in these patients with terminal disease. Rather it is the purpose of this cautious scheme to keep the patient free of pain and yet alert as long as possible.

Whenever morphia is used, laxatives must be given preventively in order to avoid constipation and fecal impaction.

Pain is often a local problem requiring attention to individual painful lesions. Local palliative roentgen-ray therapy should always be tried by a skillful radiotherapist and if successful should be repeated to the limit of tolerance. Severe and intractable pain may require neurosurgical interventions, such as nerve sections, chordotomies, etc.

Nausea and vomiting are most distressing. If the result of intestinal obstruction, they may require surgical palliation. Suction by gastrointestinal intubation often alleviates the symptoms long enough to permit the patient's death without the torture of continuous vomiting.

Nausea of central nervous origin owing to cancer, or iatrogenic, as that induced by narcotics, may respond well to chlorpromazine and should always be so treated rather than accepted as inevitable.

Ascites and exudates in the pleural cavities must be evacuated before they cause distress and dyspnea. Formation of neoplastic exudates may be retarded by local roentgen-ray therapy or by the injection of nitrogen mustard into the serous cavities.

Weakness, fatigue, and cachexia present serious problems. Sometimes lassitude and weakness may be due to electrolyte imbalances. In patients placed on a low salt intake during hormone therapy, especially when they are also vomiting or receiving mercurial diuretics periodically, or during the hot season, salt depletion may be the cause of exhaustion and is easily correctible. Potassium depletion under ACTH or cortisone therapy is another instance of iatrogenic weakness. Hypercalcemia may be at the root of unexplained lassitude. Occasionally weakness is the first sign of uremia, such as in patients with pelvic tumor invasion.

Cachexia is inevitable in cancer patients who live long enough. The use of protein anabolic hormones may retard this type of malnutrition. Faithful attention by the physician, the nurses, and the family may work wonders in encouraging the patients to eat more and to maintain their body weight for longer periods of time than when all hope is abandoned. We have seen many "terminal" patients gain weight immediately after their admission to the Holy Ghost Hospital, with no therapy other than the solicitude of the nurses, which they lacked at home or in other hospitals.

Patients with terminal cancer have every reason to be depressed, yet many of them, if properly encouraged by physicians, nurses, and friends, manage to achieve an amazing degree of equanimity and adaptation to the inevitable. In this the skillful physician may aid them considerably. Thyroid and cortisone derivatives, benzedrine in small doses, occupational therapy, and psychotherapy may enable many depressed patients to regain a more optimistic outlook. Chlorpromazine and the other "tranquilizers" should also be tried.

In short, it is the experience of those dealing with cancer patients in advanced stages that not only must they use those measures that have a reasonably sound experimental basis as carcinolytic or carcinogenic agents, but they must employ every weapon designed to strengthen the patient's physique and mind. This is a branch of medicine that demands that, until more effective methods for cure are available, we fulfill our function as physicians to sustain as best we can. If we abandon such patients, we have failed not only as physicians but as human beings.

(For references see opposite page.)

References

1. Homburger, F.: The Medical Care of the Aged and Chronically Ill: with Particular Emphasis on Degenerative Disorders, Advanced Cancer and Other As Yet Incurable Diseases. Boston. Little, Brown & Co. 1955.

2. Homburger, F., and Fishman, W. H., Eds.: Symposia on Research Advances Applied to Medical Practice. I. The Laboratory Diagnosis of Cancer of the Prostate. Boston. Tufts College Medical School [1954.]

3. Karnofsky, D. A.: Chemotherapy of cancer. CA—Bull. Cancer Progr. 5: 165-173, 1955.

4. Wintrobe; Altman; Walter, and Levinson: Practical aspects of chemotherapy of leukemia and related disorders. CA—Bull. Cancer Progr. 5: 174-176, 1955.

KINESCOPE 6: THE DIAGNOSIS OF BREAST CANCER

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Dr. Levin states the problem of breast cancer in epidemiological terms and brings the frame of reference to the office of the general practitioner.

Dr. Haagensen and Dr. Stout describe the pathogenesis of breast cancer and demarcate the routes and methods of metastasis. The question of the importance of early diagnosis is reasoned.

The detailed technique of adequate breast examination is explained and the patient's responsibility in the diagnosis of breast cancer, through self-examination, is clarified. Dr. Haagensen outlines a type of self-examination which can be taught to patients in the doctor's office.

The procedures used for the diagnosis of the "lump in the breast" are presented.

This kinescope is available through your Division of the American Cancer Society. Running time: 45 minutes; 16-mm. color with sound.

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Colostomy Control in and by Two Physicians

Reports by physicians of their own illnesses are always of great interest and contribute much to the accurate understanding of these conditions. No one can describe the management of colostomy with more authority than the colostomee himself, especially when he is a physician. Extracts from two such reports that are of possible value to other colostomees are given here.

Dr. Clayton-Jones writes: "In over ten years of colostomy life one picks up a few useful tips. I have found only three ways of keeping one's stools reasonably constipated, which is the ideal state for a colostomite. . . . The three successful ones are: (*a*) opiates; (*b*) aspirin; (*c*) methylcellulose. . . . Opiates suffer from their well-known disadvantages. After a few days on full doses of any of them, in any form, one becomes an addict in fact if not in name. They also have legal and medical side-effects, which are at their worst when travelling, particularly to foreign parts. The production of letters from the Home Office, etc., has little influence on one's reception in, say, New York when one applies for a small allowance of opium for checking diarrhoea. . . . A dose of gr. 10–20 (0.65–1.3 g.) [of aspirin], taken with as little water as possible, will often check an exacerbation of diarrhoea and give a reasonably peaceful night. . . . Far the best medicament for controlling an unreliable or definitely overactive bowel, in my experience, is methylcellulose taken with a minimum of water. It forms a colloidal suspension with the contents of the bowel, from which it abstracts fluid throughout its passage to the rectum. Otherwise it has no action whatsoever. It is finally excreted, chemically unchanged, in the stools. One additional fact, but one very important to a colostomite, is the property of methylcellulose practically to eliminate the faecal odour which so often debars him from normal social activities or, at the least, embarrasses him by making life unpleasant for his family. . . . I take two doses a day, the first shortly after getting up and the second before going to bed. On waking I drink two large mugs of tea, which usually makes the colostomy act. Half an hour later I take my morning dose of methylcellulose, which is two teaspoonfuls stirred briskly in an ounce of water. . . . By keeping the amount of fluid drunk during the day to a minimum, my colostomy usually remains quiet, but when I drink in the evening I sometimes get a second motion. My evening dose depends on the behaviour of the bowel during the day—the looser it is, the more should be taken, whereas if there is no action at all the dose may be omitted or reduced to a small teaspoonful. This evening dose ensures a restful and undisturbed night."

"Orion" stated that at the time of his "temporary" colostomy, seven years ago, he had vague hopes of rivaling Pavlov or Wolf and Wolff by observing his intestinal behavior. But the only observation worthy of record was his reaction to aspirin. He describes his management as follows:

"I pump in a pint or two of water with my Higginson until, with a visible contraction of the protruding bowel, the whole lot, with faecal additions, is rapidly and violently returned. But occasionally these explosive contractions do not occur; instead, after 2–3 pints has gone in, the water begins to well gently out again, and the bowel can only be emptied by pommelling the abdomen and doing trunk-bending-sideways exercises.

"When this had happened several times I noticed that it followed a dose of aspirin overnight. Since then I have become fairly certain that gr. 10 of aspirin stops my colon contracting normally when distended twelve hours or so later. And the effect is the same whether the aspirin has been taken for lumbago or toothache or for the more usual headache."

In the *British Medical Journal* Corre-

spondence, January 21, 1956, Stanley Aylett invites Dr. Clayton-Jones to give the irrigation method of colostomy care a trial. It is stated that this method gives minimal inconvenience, is required but once in twenty-four hours, requires no medication, involves but little dietary restriction, and necessitates no colostomy cup or cotton pads. And there is no danger of bowel perforation if the colostomy has been properly fashioned and the patient skillfully trained.

In the same issue, the manufacturer of methylcellulose warns against confusing this entirely safe absorbent with carboxymethylcellulose, which has been reported to be responsible for a number of cases of fecal inpaction.

References

1. *Clayton-Jones, E.: Colostomy control. [Correspondence.] Brit. M. J. 1: 44, 1956.*

2. *"Orion" [The contributing physician takes as pseudonym the name of the warrior constellation wearing a girdle of three stars and a lion's skin and carrying a club and a sword.]: Action of aspirin on the colon. [Correspondence.] Lancet 2: 235, 1950.*

International Association of Laryngectomees

There are somewhere between twenty-five and forty-five thousand laryngectomees in the United States. During the past few years at various places throughout the country these laryngectomees have been organizing into groups for the combined purposes of sociability and complete rehabilitation under such names as *Lost Cord, New Speech, New Voice, Esophageal Speech, Nu Voice,* and *Cured Cancer Clubs.*

In August of 1952 the first annual convention of these groups was held in Cleveland and the International Association of Laryngectomees was organized. In 1955 the American Cancer Society, Inc., granted the budget requested by this organization for the purpose of strengthening an denlarging this phase of the cancer-control program. The Association exists solely for the purpose of promoting total rehabilitation of the laryngectomee—physical, psychological, social, and economic.

Relearning to speak after removal of the larynx is an unusually dramatic example of rehabilitation. Esophageal-speech training programs are supported, and a course for teachers of esophageal speech is being sponsored. For further information address Mr. Edward W. Tuescher, Executive Secretary, Association of Laryngectomees, Detroit Cancer Center, 4811 John R Street, Detroit, Michigan.

Psychiatric Aspects of Malignant Disease*

C. H. Hardin Branch, M.D.

There are three important questions that arise immediately when one considers the relationship between psychiatry and malignant disease:

1. What effect do emotional factors have in the production of cancer?

2. How do patients feel about having cancer?

3. What should the cancer patient be told about his illness?

Definitive answers are sometimes impossible to find but there is sufficient interest in this important field to make some discussion justifiable. Hopefully, continued investigation of the interlocking relationships between emotions and reactions to disease may make it possible for us to improve the handling of these patients.

With reference to the first question, What effect do emotional factors have in the production of cancer? the to-and-fro causal relationships between feelings and actual body changes would certainly make psychogenic factors identifiable as possible contributors to the etiology of cancer. Unfortunately, as in all psychophysiological reactions, what may be specific for the individual may not apply to the group. Or, to put it another way, we may be able to explain the dynamics of an illness quite adequately and helpfully in one individual and still find other people with essentially the same history and the same psychopathology but without any evidence of malignant changes.

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**Presented at the Fourth Annual Cancer Seminar of the Arizona Division of the American Cancer Society in association with the Arizona Medical Association, Phoenix, Arizona, January 28, 1956.*

There are several areas in which emotions and cancer may coexist. In some of these, one contributes to the other; in others, they apparently simply appear together but have no demonstrable causal connection. Meerloo lists thirteen such possible relations:

1. Emotions and somatic affliction may simply be coincidental findings.
2. Cancer may produce psychological involvements.
3. Emotional symptoms may be the first sign of cancer.
4. Cultural factors (related to emotions on a very broad base), such as smoking, exposure to irritant chemicals, etc., may have some etiological bearing on cancer.
5. A common central factor may cause both the emotional disturbance and the cancer.
6. In psychotic patients, delusions regarding cancer are fairly common.
7. The diagnostic procedures attendant upon diagnosing a cancer may be emotionally traumatic.
8. Stress reactions in some cases appear to have etiological significance.
9. There may be direct etiological emotional factors.
10. The site of the cancer may be unconsciously directed.
11. The physician himself may become emotionally involved with his cancer patients.
12. The chronic cancer patient requires a great deal of emotional support.
13. Some "miraculous cures" appear to have emotional factors as contributory elements.

Of this rather formidable list, a few items deserve especial attention. On the matter of the etiological effect of emotions, either in the sense of actually producing cancer or in the sense of determining the site of the cancer, some intriguing evidence exists and certainly this area deserves closer scrutiny. For example, Tarlau and Smalheiser found that psychological study of women, some of whom had breast cancer, while others had cervical cancer, reveals significant differences. While both groups exhibited "mother" dominance with some rejection of the feminine role, the result being negative attitudes toward sexuality, the "breast group" was better able to make a superficial adjustment. The "cervix group" had a higher incidence of premarital relations and a higher incidence of overt marital discord.

Similarly, Reznikoff found that breast-cancer patients as compared to cancer-free patients in the same clinic had a far greater number of sibling deaths at birth or in early infancy, were subjected to excessive responsibilities as children, had less successful marriages, and had more disturbances in feminine identification. It is noteworthy that in this study the psychological examinations were performed before the diagnoses were made.

While no one can safely say that emotional factors can be identified with sufficient clarity to provide us with useful diagnostic or therapeutic tools, evidence of the sort just mentioned would certainly justify careful attention by the physician whose practice includes a great number of cancer patients.

On the second question, How do patients feel about having cancer? it is our impression that physicians are far more anxious on this point than are their patients. We recently questioned 105 patients, fifty-one of whom had some form of cancer, on their attitudes toward cancer. Of the group that was cancer-free, forty-eight of the fifty-four preferred to be told about their condition. Of the cancer group thirty-nine of the fifty-one knew the nature of their conditions and nine denied any illness whatsoever. It is interesting to note that some of those who denied any illness had gross evidence, including surgery, that something was wrong but nevertheless they continued to express attitudes indicating perfect health. One patient who denied having cancer was almost moribund before calling a doctor; another patient who knew that he had cancer was much more worried about arthritis than he was about cancer.

It might be interesting to indicate a few of their comments relating to their cancer and its treatment. One distrusted doctors

because of conflicting reports. Another feared that the "parent cancer" had not been removed. One man said, "my cancer was due to my slipping up," referring to an early sexual misdemeanor. One woman had learned of her cancer from hearing an interne's talk about her case. Another woman was intensely angry because the doctor who had removed her breast had said, "After all, it is just a little piece of flesh."

Apparently patients do not actually fear death. In fact, it has been said that it is impossible for a person adequately to imagine himself dead. Rather, these patients feared the process of dying, which involved pain and suffering, chronic illness, the loss of body parts, "being a burden," or becoming in some way socially unacceptable. It would thus appear that suffering and loneliness—symptoms for which we have something to offer—are the two major concerns of cancer patients.

As to the causative factors or nature of cancer, these patients described cancer as "dirty," "nasty," or in some way related to filth. Some described infections or invading organisms, such as spiders or leeches. In the group of patients with cancer, five described quite realistically "a mass of cells" and attributed this knowledge to public-education programs on cancer.

On the third question, What should patients be told? most physicians are tremendously concerned about this point. As already indicated, the doctor who takes responsibility for a patient becomes emotionally involved with that patient and consequently may react to his own helplessness in the face of a situation that threatens a person who has become important to him. In such a case the physician may try to avoid his own discomfort by refusing to discuss with the patient the nature of his condition. In some cases this may almost amount to the same denial of illness as was noted in some of the cancer patients in our survey. Actually, if the physician takes this position, the patient is prevented from discussing his fears, is left maintaining a spurious facade, and is burdened with the additional load of "having to keep up appearances." The doctor's real support and help can be given freely to the patient only if there is an opportunity for the patient to discuss freely any feelings he may have about his condition. While each case must be individualized, there would certainly seem to be strong support of the idea that the doctor who discusses frankly with his cancer patients the nature of their condition, who reassures them as to his honest and continued interest in their welfare, and who provides them an opportunity to express their own feelings on the matter—such a physician is using powerful weapons against the loneliness that the patient dreads.

References

1. *Meerloo, J. A. M.: Psychological implications of malignant growth; a survey of hypotheses. Brit. J. M. Psychol. 27: 210-215, 1954.*

2. *Reznikoff, M.: Psychological factors in breast cancer; a preliminary study of some personality trends in patients with cancer of the breast. Psychosom. Med. 17: 98-108, 1955.*

3. *Tarlau, M., and Smalheiser, I.: Personality patterns in patients with malignant tumors of the breast and cervix; an exploratory study. Psychosom. Med. 13: 117-121, 1951.*

Unlike the consultant, the general practitioner cannot say to his patient that he can do nothing for him; the patient has no-one else to help him, and only too often it is left to the general practitioner to think up some way in which to help even the most difficult chronic patient—with untreatable psychosis or inoperable cancer.

Philip Hopkins: Lancet 1: 1956; p. 106.

S' DILEMMAS

Q *Should a man with a colostomy be allowed to bathe in a public swimming-bath?*

A By the time that a patient with a colostomy begins to think about resuming swimming it can be taken for granted that he has become confident in his colostomy routine and management. If his general health is good a resumption of all normal out-of-door activities is to be encouraged, and there is no objection to such a patient swimming either in the sea or in a public swimming-bath. For the occasion the colostomy may be covered with a small square of gauze, and this is then sealed over with a couple of strips of 2 in. or 3 in. "elastoplast" or one of the waterproof adhesives. A patient with a colostomy is not likely to want to enter a swimming-bath if he is in a phase of intestinal upset or irregularity, and for his own good he might be warned not to stay in the water overlong or risk a chill subsequently by dawdling on the side. Particular care in diet should be advised before and after swimming, with no experiments in regard to fruit, vegetables or drinks in order to ensure that the motions are formed or slightly constipated. (From *ANY QUESTIONS. Brit. M. J. 2: 1344, Nov. 26, 1955.*)

Q *Is routine cervical biopsy advocated for all women with chronic cervicitis?*

A Benign cervical disease not infrequently coexists with early, unsuspected cancer of the cervix. Cervical and vaginal smears should be obtained from such patients 30 to 35 or more years of age, and cervical biopsy should be performed. It is important that treatment of whatever condition is present be deferred until the reports from the pathologist are available. Thus, if further biopsy is requested, it may be obtained from tissue unaltered or destroyed by treatment.

Q *Should active treatment be undertaken in the case of a 74-year-old man, without symptoms or anemia, who was found on routine examination to have chronic myelogenous leukemia?*

A Elderly, asymptomatic patients with chronic myelogenous leukemia should be studied carefully at four-week intervals with appropriate examination and blood studies. Many feel that active treatment should not be instituted so long as the patient remains asymptomatic but should be initiated promptly if anemia or other significant symptoms appear.

Q *I first saw a 52-year-old man three months ago, at which time his hemoglobin was 8 gm. His complaints were vague except for fatigue and weakness that had developed gradually. Hematological studies and bone-marrow aspiration were not remarkable. A complete gastrointestinal survey revealed no abnormalities. After a transfusion the patient immediately became asymptomatic, but after*

three weeks his hemoglobin had fallen from 15 back to 8 gm. Repeated stool examinations now show persistent occult blood despite the fact that the patient has been on a meat-free diet. Recent repeat gastrointestinal survey is again unremarkable. Is an exploratory laparotomy indicated at this time?

A Occult blood in the stool is a definite indication of bleeding from the gastrointestinal tract. While barium-enema examinations are often valuable in arriving at a diagnosis, a false feeling of security can be caused by a negative report from the roentgenologist and valuable time may be lost in instituting treatment. Existing neoplasms in the colon are not shown in approximately 5 per cent of barium-enema examinations. If polyps are included, perhaps 15 per cent of existing lesions in the colon may be overlooked on roentgenography. The lesions most likely to be causing your patient's bleeding are polyps, tumors of the small intestine, small ulcerating carcinomas of the stomach, lipomas involving the gastrointestinal tract, or, more rarely, Meckel's diverticulum or chronic intussusception.

Q *My patient, a 35-year-old man, has been complaining of recurrent belching, moderate regurgitation, and vague left lower chest pain for the past six months. Roentgenograms of the chest are normal. A gastrointestinal series shows a hiatus hernia. Diet and medication do not help in any way. Other laboratory studies are normal. Should this patient be considered for surgical management of the hiatus hernia?*

A Although hiatus hernia may cause the symptoms described by this patient, they could easily be produced by gastrointestinal disorders, notably an annular lesion of the colon with low to moderate grade obstruction. Small lesions of the colon are notorious in producing symptoms such as described. This patient's hiatus hernia may have been present for many years. Careful studies of the colon should be done before surgical treatment of the hiatus hernia is undertaken.

References to Palliation and Rehabilitation in Previous Issues of CA

1:147, July, 1951	Rehabilitation of the laryngectomee.
1:153, July, 1951	Surgery and prosthesis in jaw reconstruction.
1:160, July, 1951	Rehabilitation of President Cleveland prevented international monetary crisis.
1:161, July, 1951	Rehabilitation after colostomy.
1:163, July, 1951	Care of the dry sigmoid colostomy.
1:166, July, 1951	Management of the wet colostomy.
2:26, Jan., 1952	The management of cutaneous ureterostomies.
2:85, May, 1952	Palliative treatment for advanced cancer of the lung.
3:14, Jan., 1953	Problems in the management of patients with advanced cancer.
3:19, Jan., 1953	Managing the emotional problems of the cancer patient.
3:32, Jan., 1953	Treatment of advanced neoplastic disease.
4:27, Jan., 1954	Odor control for wet-colostomy and ileostomy patients.
4:97, May, 1954	The management of my colostomy.
4:198, Nov., 1954	Muscle training after mastectomy.

new developments in cancer

Experiment in Cancer Education . . .

In Manchester, England, an experiment has been started to test techniques of cancer education in a defined area and of minimizing delay in seeking treatment. The Ministry of Health encourages local authorities to maintain use of the several experimental educational media permanently. Lectures (lay and medical) and newspapers and other publications were used.

The experiment demonstrated that an area can be saturated with intensive anticancer propaganda without flooding hospital facilities and without causing canceriphobia, as is sometimes asserted. Many indications suggested progress in cancer control from this experiment in education.

Roentgen-Ray Grid Therapy . . .

The use of grids to protect areas within the field during a series of roentgen-ray treatments was described by Hirsch Marks (New York City Department of Hospitals). The idea of the grid is to send rays through multiple identical avenues during each treatment. Among the effects of grid therapy are elimination of radiation sickness and blood changes, an enhanced healing effect, and an ability to deliver high single doses. He recommended cross-fire techniques for deep tumors and multiportal irradiation by converging beams for tumors with a sloping surface that extended into a viscus. He suggested a tumor-encompassing field and rotation therapy with a grid for diffuse and rapidly growing tumors.

Bacterial Polysaccharides . . .

It is proving an uphill fight to obtain a more effective bacterial polysaccharide for the treatment of cancer. Hugh J. Creech and others of the Institute for Cancer Research, Philadelphia, have reported on tests of several polysaccharides isolated from *Salmonella marcescens*, *Escherichia coli*, and other sources; and, although considerable activity variation has been found among the various complexes, the same old drawbacks are present. The drugs, as tested on transplanted mouse sarcomas, remained highly toxic. To cure 50 per cent or more of the mice of their transplanted tumors, a dosage sufficiently strong to kill 30 per cent must be used. Multiple injections rarely are more effective than single injections—the mice soon develop an immunity to the drug. Alternate use of preparations of *S. marcescens*

and *E. coli* did not overcome this drag on therapeutic effect. Attempts to improve the polysaccharide complexes by fractionation, absorption, and chemical modification were generally unsuccessful.

Tumor vs. Embryo Growth . . .

C. G. Bly and J. F. Migliarese of the University of Kansas have implanted Walker 256 carcinoma in pregnant rats. The idea: Which, if either, is the greater competitor for available growth essentials —the embryo or the tumor? In some cases the "physiological tumor" (the embryo) won—it survived and the tumor regressed. In other cases the Walker tumor won—abortion occurred. In still other cases, the growth rates of both the tumor and the embryo were depressed. The embryo competed most successfully during the third trimester of pregnancy.

Immunity Overcome . . .

Two groups of scientists at the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Maine, have discovered, independently, different methods of overcoming immunity in animals. Results of this research have implications far beyond the nature of carcinogenesis (tumors were used as a tool in many of the studies). They eventually may turn out to be of clinical value in effecting skin grafts and organ transplants and in solving Rh-factor problems. Under the direction of George D. Snell, one group has found that cell cytoplasm contains particles that overcome a foreign host's immunity to that particular cell type. When these particles are extracted (by spinning and treatment with hyaluronidase) and injected into a normally resistant host, its resistance is overcome and it becomes thoroughly susceptible to a later transplant of these specific cells. The acquired tolerance is as specific as acquired immunity. The Snell group has found that the immunity-destroying particles are controlled by various genes—one of the commonest mapped in these experiments was the *H-2* locus of the mouse ninth chromosome. One effect of the cytoplasmic extracts was to block lymph-node production of antibodies against the antigen. Between this and the prevention or inactivation of other antibodies, mice were rendered completely susceptible to tumors to which they normally were resistant. The second method was developed by Nathan Kaliss. Kaliss, in effect, produced antibodies against antibodies. By injecting animals with the anti-antibodies, he succeeded in inducing them to grow tumors and other tissues to which they normally were resistant. Kaliss injected extracts of mouse tissues into rabbits. The rabbits produced antibodies against these tissues. He then injected the antibody-loaded rabbit antiserum into a foreign strain of mice—that normally would produce antibodies against the first mouse's tissues—and these mice then produced antibodies against the rabbit's anti–mouse antibodies. When he then injected the second (normally resistant) mouse with tissues from the first mouse, the tissues took root and grew. The anti-antibodies had destroyed the new host's resistance. The best results were obtained when the tissues were transplanted within a few hours after the mice had been inoculated with rabbit antiserum. When cancer tissues were used, mouse resistance was overcome for as long as forty-six weeks.

goose may be innocuous to the gander; a compound innocent in one species may be culpable in others; dosage (concentration, time, route of administration) may make all the difference in the world; the presence of noncarcinogenic cocarcinogens (thanks for the term, M. Shear) may lower the carcinogenic threshold enormously. About six hundred compounds now are known to be carcinogenic and so far these have failed to yield sure-fire evidence of indictable molecular structure or guilty atomic groupings. One of the (noncommercial) compounds has turned out to be a super-duper carcinogen -- 9,10-dimethyl-1,2-benzanthracene. A touch of it little larger than a flyspeck produces hamster melanoma.

These sobering statistics have been produced by Hayes (Yale): one of four gastric (not duodenal) ulcers harbors a carcinoma; six in every hundred gastric-carcinoma patients who dodge surgery for six months or longer manage to survive five years; of every 100 who undergo surgery within four weeks after the appearance of symptoms sixty-six survive five years.

Cassel and Briody have made thought-provoking observations on neurotropic influenza and vaccinia viruses. They have found that after several successive transfers in a mouse cancer, the viruses are able to destroy almost all the cancer cells when injected into mice or used in vitro. Some of the surviving cancer cells reject the virus completely, and others conspire with the virus to endow it with a potent toxicity. Injected into tumor-bearing mice, the virus destroys virtually all the cancer. But it also destroys the mice with its mysterious poison.

Bolt (Mich. U.) uses a system that frequently will show up the presence of stomach cancers. The test is by no means foolproof, but, as every gastroenterologist knows, anything that will detect some early stomach cancers is of value. The test goes like this: (1) the fasted patient swallows a tube; (2) the stomach content is drawn off, spun, smeared, fixed, stained, and examined microscopically; (3) 500 cc. of mild alkaline solution and (mucus-digesting) chymotrypsin is introduced; and (4) the stomach again is emptied and the content treated and examined. The score to date is 100 per cent accuracy in positive cases and 80 per cent accuracy in negative cases.

Some of the most convincing evidence of the antigenicity of cancer has come out of the mouse work of Fink

(Colo. U.). She has immunized animals against specific tumors by implanting the cancers in their tails and two or three weeks later -- before the tumors become metastatic -- whacking off the tails. Second cancer transplants do not take in these immunized animals. Mice sensitized with frozen and dried tumors react anaphylactically when later challenged with live tumor. And so do they when sensitized with a tumor extract plus Freund's adjuvant. Smooth-muscle studies of survivors of anaphylaxis also confirm the antigenicity observations -- uterine horns of these animals reacted violently when the Schultz-Dale technique of exposing them to live tumor in vitro was used. Fink's other tests indicated that antitumor antibodies circulate little if at all but do abound in tissues. Her mouse results have paved the way for careful and cautious experimental immunological treatment of humans by clinicians wishing to avail themselves of the data.

Schwartz (Hektoen Institute) has made the startling observation that extracts of human leukemic brain greatly accelerate the development of leukemia in susceptible mice. He also finds a remarkable serological similarity between the leukemias of mouse and man. The apparent human agent proved highly effective after three passages through resistant mouse strains -- brain-tissue extracts of the third resistant carrier rapidly brought on leukemia when introduced into leukemia-susceptible animals.

Paschkis, Cantarow, and Stasney (Jefferson) have purified to some degree a liver substance that promotes cancer growth. The product is still too crude to be characterized, however. The existence of such a substance was first stumbled upon when the investigators set out to learn whether liver regeneration would interfere with the growth of transplanted tumors. They had speculated that liver regeneration might use up the body's growth potential and slow down tumor development. They found to their surprise, however, the tumor transplants grew faster than ever in hepatectomized animals. They have extracted in crude form the tumor accelerator from both normal and regenerating liver and found it more abundant in the latter. Recently they have challenged liver regeneration with pregnancy and vice versa (by removing livers of pregnant rats). Contrary to the tumor results, hepatectomy depressed embryonic growth -- there were frequent abortions and the surviving offspring were unusually small.

COMING MEDICAL MEETINGS

Date 1956	Meeting	City	Place
June 10-14	Canadian Medical Association	Quebec, P.Q., Canada	Laval University
June 11-15	American Medical Association	Chicago	Navy Pier
June 17-22	American Society of Medical Technologists, Canadian Society of Laboratory Technologists, Joint Session	Quebec, P.Q., Canada	Hotel Frontenac
July 5-13	British Medical Association	Brighton, England	
July 22-28	Eighth International Congress of Radiology	Mexico City	
Aug. 13-16	National Medical Association, Inc.	New York City	Hotel New Yorker
Aug. 16-18	Rocky Mountain Radiological Society	Denver, Colo.	Shirley-Savoy Hotel
Aug. 19-23	Fourth International Congress on Diseases of the Chest	Cologne, Germany	
Aug. 27-31	Gordon Research Conferences; Cancer Conference	New London, N. H.	Colby Junior College
Sept. 9-13	International College of Surgeons (U. S. Section)	Chicago	Palmer House
Sept. 17-20	American Hospital Association	Chicago	International Amphitheater
Sept. 25-28	American Roentgen Ray Society	Los Angeles	Statler Hotel
Sept. 26-28	Mississippi Valley Medical Society	Chicago	Hotel Morrison
Oct. 1-4	American Dental Association	Atlantic City	
Oct. 8-12	Clinical Congress, American College of Surgeons	San Francisco	Civic Auditorium
Oct. 8-10	International Cancer Cytology Conference	Chicago	Drake Hotel
Oct. 9-13	American Society of Clinical Pathologists	Chicago	Drake Hotel
Oct. 9-15	World Medical Association	Havana, Cuba	
Oct. 22-26	Interstate Postgraduate Medical Association of North America	Cleveland	Municipal Auditorium
Oct. 30-Nov. 1	New England Postgraduate Assembly	Boston	Statler Hotel
Nov. 11-14	Association of Military Surgeons of the U. S.	Washington, D. C.	Statler Hotel
Nov. 12-16	American Public Health Association	Atlantic City	Convention Hall

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Forty Do's for the Physician in Cancer Prevention

1. Remove polyps from bladder and bowel.
2. Remove areas of leukoplakia.
3. Perform complete, not subtotal, hysterectomy.
4. Remove moles from mucous membranes and zones of irritation, as groin, neck, and soles.
5. Perform colectomy in patients with ulcerative colitis refractory to medical management.
6. Remove solid or large ovarian cysts.
7. Examine all surgical specimens microscopically for indications for more extensive operation, or abnormality elsewhere.
8. Advise against overexposure to aniline dyes, chromates, and asbestos.
9. Remove all senile keratoses.
10. Examine cervical scrapings cytologically.
11. Excise locally duct papillomas of the breast.
12. Circumcise male babies.
13. Remove thyroid nodules, especially the single ones.
14. Remove single thyroid fibroadenomas in younger women.
15. Graft nonhealing areas of deep skin burns.
16. Treat vigorously chronic mouth infections, especially in presence of irritating teeth.
17. Correct undescended testicle surgically if hormone therapy fails.
18. Advise protection against overexposure to sunlight.
19. Repair cervical lacerations carefully.
20. Apply electric dessication to chronic cervical ulcerations.
21. Advise against the use of tobacco.
22. Insist on adequate ventilation, use of appropriate gas masks, and short work shifts in industries with fumes, mists, and vapors.
23. Minimize therapy with carcinogenic drugs, as arsenic.
24. Avoid unnecessary exposure to radiation—roentgen rays, radium, and radioactive isotopes.
25. Look for and eliminate carcinogens in daily living—asphalt, food additives, food preservatives, certain metallic fumes.
26. Prescribe routine douching for chronic, irritating vaginal discharge.
27. Warn against repeated irritation of skin of hands and body by oil, gas, solvents, tar, etc.
28. Treat or remove areas of chronic skin irritation, as arsenical dermatitis.
29. Help to correct pollution of urban atmospheres with smog, fumes, and smoke.
30. Remove persistent areas of localized, chronic mastitis.
31. Encourage breast feeding or mechanical removal of milk.
32. Insist on oral and dental hygiene.
33. Advise proper home, garage, and automobile ventilation to avoid repeated exposure to carcinogens.
34. Remove berylliosis lesions.
35. Correct avitaminoses and other nutritional deficiencies, such as iron.
36. Warn against excessively hot foods and drinks.
37. Give instruction concerning the role of circumcision and penile hygiene in prevention of cervical cancer.
38. Treat gastritis intensively medically for no longer than six weeks before eliminating the possibility of cancer.
39. Suspect pernicious-anemia patients of gastric cancer in presence of hypochlorhydria.
40. Remove gallstones as soon as discovered.

From Tumor Clinic, Cancer Research Hospital, University of Wisconsin, Madison, Wisconsin, Robert J. Samp, M.D., Director.